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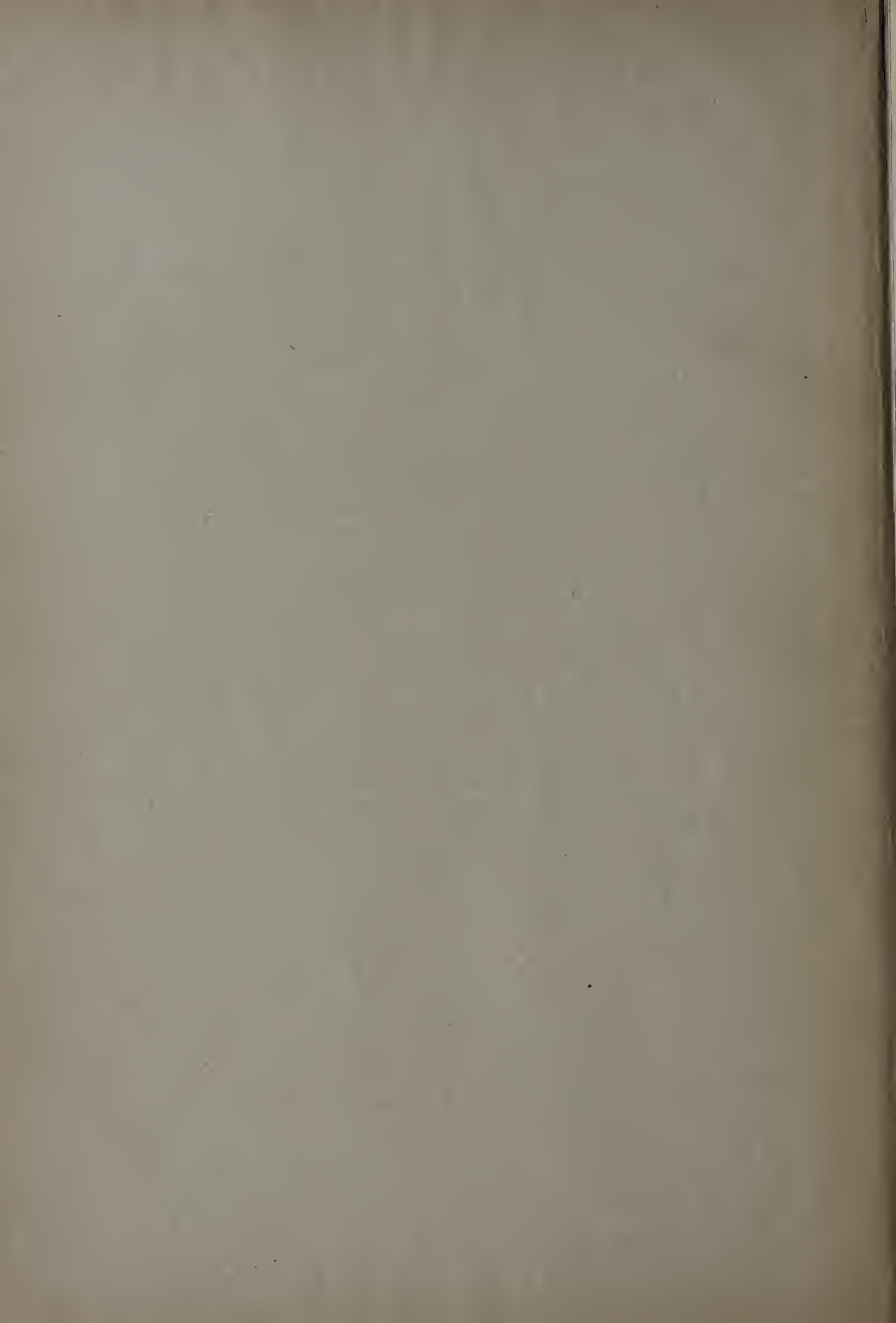
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KENTUCKY MEDICAL JOURNAL

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BOWLING GREEN, KY., JANUARY, 1925

No. 1

EDITORIAL

HAPPY NEW YEAR

The Council of the Kentucky State Medical Association desires to extend to all its members its heartiest good wishes for a Happy New Year. It hopes for every Kentucky doctor a broader and better service to his patients during the year. It hopes for each of them a more grateful recognition on the part of those he serves.

The Council is impressed with the growth of the opportunity for service for the medical profession. It believes that as its leadership develops in the several communities of the State disease and inefficiency and unhappiness and premature death will be decreased. It hears with gratification reports from many individual physicians, and from a few of the most advanced county medical societies as a whole, that there is a large increase in the public health functions of the practicing physician. More Kentuckians were vaccinated against smallpox in 1924 than any previous year in the history of the State. Probably more than five times as many were inoculated against typhoid fever than in any other year, excepting the War years. The tremendous increase in the use of toxin-antitoxin for the prevention of diphtheria means the gradual and eventual elimination of this most terrifying of the causes of death in children. No other progressive step has been more gratifying than the geometric increase in the number of women who are having complete prenatal care. Thousands of babies are under the constant health supervision of their physicians. Equally gratifying is the recognition by the public of the fact that these public health services of the profession are of such value and importance that they must not only secure them but that they are glad to remunerate their physicians for them. For many years the organized fight against tuberculosis and cancer has gone on and results are better and better in the reduction of these diseases. During 1924 a real progress has been made in the fight to reduce diabetes and heart disease. In many states

these activities have been carried on as public or semi-public functions. But the Council takes particular pride in the fact that in Kentucky all of these movements are led and controlled by the medical profession and the work is being done and the gratitude and remuneration for it is being received by the practicing physicians of the State. In proportion as our doctors qualify themselves to make systematic health examinations and to perform the several functions that modern science has proven are necessary for the protection of the individual health of their patients will they be successful in preserving for the profession the confidence of the public.

CONGRATULATIONS TO THE GOVERNOR

Governor Fields has again earned the gratitude of the medical profession by his appointment of Dr. Curran Pope as a member of the State Board of Charities and Corrections. Dr. Pope is the first medical member since the expiration of the term of the late Dr. Arch Dixon of Henderson. No man in the State exerted more influence in the creation of the present effective non-partisan State Board of Charities and Corrections than Dr. Dixon.

Dr. Pope needs no introduction to the readers of this JOURNAL to which he has been a frequent and an honored contributor. Not only a distinguished neurologist, he has for many years successfully administered a private sanatorium and is as familiar with institutional business as with the professional management of institutional inmates. Dr. Pope is a learned man in the best sense of that much abused term and will contribute to the already excellent personnel of the Board the scientific knowledge which is so essential to its best success.

The JOURNAL will look forward to an even better administration of the State's institutions with this addition to the Board. Considerable increases in the appropriation for the State's institutions should be made by the next General Assembly as the Board should broaden its administration so as to be

able to put considerable emphasis on mental hygiene and the prevention of the conditions which cause the various forms of delinquency which are so rapidly overpopulating the present available but inadequate buildings.

DR. ABELL HONORED

An honor to Dr. Irvin Abell is an honor to the medical profession of Kentucky, of which he is one of the most popular representatives. It is, therefore, gratifying to his numerous friends that he has just been unanimously elected President of the Southern Surgical Association. This honor to Kentucky was made more emphatic by the Association determining to meet in Louisville next fall.

The Southern Surgical is one of the best, if not the very best, of the special societies in this country, and it has greatly honored itself in the estimation of the medical profession of Kentucky in selecting Dr. Abell as its President.

THE OWENSBORO PROGRAM

President-elect Woodard has selected Dr. M. J. Henry of Louisville as the third member of the Committee on Scientific Work of the Kentucky State Medical Association. Dr. Henry has been associated with Dr. Irvin Abell in the practice of surgery since his graduation and is one of the most active and zealous of the younger members of the profession of the States.

Dr. Henry invites the members of the Association to correspond with him in regard to the program. He will be pleased to have constructive suggestions which will make it more interesting

A TRIBUTE

One of the most interesting and versatile characters who have allied themselves with the medical profession for the promotion of public health is Dr. Frederick D. Hoffman, vice-president and statistician of the Prudential Life Insurance Co., of Newark, New Jersey. There is probably no man living whose wide and accurate knowledge has been more important in the building of the public health structure of the nation. More than any other man, he is responsible for the development of the Federal leprosarium in Louisiana and he shares with Dr. Carter and Mr. LaPrince the honor of founding the National Malaria Committee, whose effective work in the south is probably the greatest

factor in the reconstruction of the southern states. The National Malaria Committee, whose standards, methods and finances have largely been made effective by the alliance of the International Health Board and the U. S. Public Health Service with the profession and health departments of the southern states, have in many southern counties already practically eliminated this disease which was the largest contributing factor to ill health and inefficiency in them.

This work could not have been so effectively done had it not been for the basic information gathered and disseminated by Dr. Hoffman. It is a pleasure to express Kentucky's gratitude to this really great vital statistician.

THE SOUTHERN MEDICAL ASSOCIATION.

The largest delegation of Kentuckians who ever attended the Southern Medical Association was rewarded at New Orleans by its most successful annual meeting. Unfortunately, the meeting places were badly scattered but the programs at all of them were so excellent and the hospitality and cordiality of the profession and people of New Orleans were so genuine that we have already forgotten the difficulties and only remember the excellence of the meeting.

The Southern Medical Association is different. It is the most purely scientific of any of the larger medical meetings in this country and in no way does it show the excellence of its organization more than in the uniformly high character of the officers it selects. The election of Stewart Roberts, of Atlanta, to succeed Charlie Minor, of Asheville, placed the emphasis upon the renaissance in clinical medicine, of which these two men are among the chief exponents. Dr. Minor is probably the most widely recognized authority on pulmonary tuberculosis in America. Dr. Roberts is one of the younger men who is very largely responsible for the increased study of and improvement of results in clinical medicine. Like our own Virgil Simpson, he has preserved all the clinical knowledge of the old masters and has added to it the armamentarium and methods of the modern scientific laboratory; and the activity of such leaders will attract the attention of the brains of the younger members of the profession in increasing numbers to internal medicine.

The Southern Medical Association is to be congratulated on its success and the physicians of the south, especially, but of the whole country, too, owe a special debt of gratitude to Dr. Seale Harris who was its guardian during its most trying years and to

Dr. Martin, of Savannah, who has been chairman of the Council since its organization. Kentuckians feel especially proud of the fact that Dr. Martin was the son of a distinguished Kentucky physician, and reared in this State.

CRIPPLED CHILDREN.

The Kentucky Society for Crippled Children and the State Commission, created by the recent General Assembly for the same purpose, working in close alliance, are laying a wise foundation for the relief of the several thousand cripples in the State. The joint organizations secured complete public confidence when they selected Miss Marian Williamson as their Executive Secretary. No other woman in Kentucky is more widely nor more favorably known for public service than Miss Williamson.

We desire to suggest that physicians all over the State write Miss Williamson giving her the names and addresses of cripples who need treatment and relief but are not able to secure it. All of the cases cannot be relieved at once but many of the most pressing ones can be reached this year. With the small funds available, it is hoped such results can be demonstrated that the next General Assembly will make a sufficiently liberal appropriation that within a few years thousands of these handicapped children may be put on their feet and made happy, productive citizens.

THE MEDICO-LEGAL COMMITTEE

Since its organization in 1910 the Medico-Legal Committee of the Kentucky State Medical Association has been wisely managed by its chairman, Dr. John J. Moren. No members of the profession in Kentucky has given more of himself to organized medicine than has Dr. Moren, serving entirely without compensation and bearing practically all of the expense of administration himself. Dr. Moren has devoted hours of his time to helping members of the profession unjustly sued for malpractice. He has felt that he has done this as long as his arduous professional obligations will permit and the Council has regretfully accepted his resignation and announces the appointment of Dr. J. B. Lukins, the retiring president of the Jefferson County Medical Society, as his successor.

Dr. Lukins is too well known to the profession of Kentucky to need any introduction and members threatened with suit for malpractice should immediately write Dr. Lukins or the Secretary.

It is very important for the members to remember that under instructions from the House of Delegates no bills for attorneys' services or court costs will be paid unless the employment of the attorney and the fee has the approval of Hon. Fred Foreht, our general counsel, and Dr. Lukins as chairman of the Medico-Legal Committee.

ORATION IN SURGERY

SURGERY OF GOITER.*

By L. WALLACE FRANK, Louisville.

Goiter is not a new disease. Historical research discloses the fact that tumors or abnormal swellings involving the thyroid gland were recognized and their physical characteristics described under various designations nearly four thousand years ago. While the general subject of goiter has been more or less continuously studied since that remote period, it has only been within the past thirty to thirty-five years that any great advances have been made, either in etiology, physiology, prevention or treatment. The names of Graves, Basedow, Kocher, Halstead, Crotti, Kendall, Crile, Plummer, Mayo, Kimball and Marine will ever be associated with our present knowledge of thyroid disorders, and to them are we indebted to the great advances made.

We would like to discuss the etiology and prevention of goiter as well as the symptoms, and also to consider the value of the study of basal metabolism but as this is a surgical paper we will attempt to limit ourselves to the surgery of the thyroid.

Excluding inflammatory and malignant disease the surgical disorders of the thyroid may be divided into two major groups, the nontoxic of which the large colloid is an example, and the toxic. This latter group is the more important and is represented in three forms, the exophthalmic goiter, the degenerated toxic colloid and the toxic adenoma. Pathologically they are of different types but clinically they are closely allied and may be considered under the term of thyrotoxic goiters.

For convenience of discussion we divide the subject into four major topics:

1. The preparation of the patient;
2. The choice of anaesthetic;
3. Arterial or polar ligation;
4. Thyroidectomy.

*Delivered before the Kentucky State Medical Association Louisville, September 22-23-24-25, 1924.

1. Preparation of the patient.

In all three groups this is a most important factor and upon the care and diligence with which this is done often hinges the outcome of the operation. Of the various types of surgical diseases this is the one above all in which hurried operation is contra-indicated. As a rule these patients have been treated at home and medical treatment has failed. Where the patient has the cares of a household complete rest cannot be obtained. Even though put to bed at home the details of management are ever present and the patient is consulted regarding them. Hospitalization must therefore be urged as the first step in preparation, for here mental as well as physical rest can be obtained. The patient is kept in bed, and quieted with sedatives, the best of which is opium in some form, if necessary. A full, easily digested and nutritious diet is allowed which for the most part should consist of carbohydrates, the decidedly toxic patient requiring four to five thousand calories per diem.

It has been noted by some observers that prolonged stay in the hospital confined to bed will cause marked amelioration of the symptoms without the use of any medication whatsoever. There was in the cases studied by this method marked diminution in the pulse rate and basal metabolism. These observers held the view that cures could be effected by this form of treatment but the number of cases studied was not sufficiently large to come to any conclusion in regard to cures, but it did establish the value of hospitalization.

From a surgical point of view a too long stay in the hospital is not desirable as the patient becomes restless and the beneficial results of hospital residence lost. During the stay in the hospital there should be close contact between patient and surgeon. This permits the patient to become better acquainted with the surgeon and this intimate association gains the confidence of the patient and tends to lessen the fear of subsequent operation.

During the stay in the hospital the patient is carefully examined both physically and with instruments of precision. The cardiac mechanism is studied and its action noted not only at periods of rest but how it responds to exertion, and its reserve strength is estimated as well as possible. The renal function is also evaluated, for many of these goiters are in elderly individuals who may have a certain amount of kidney damage, not only as a result of age and previous affections but due also perhaps to impaired circulation as a damaged myocardium. The nervous con-

trol of the individual is carefully estimated during the hospital residence and this usually requires several days of close association and observation. The pulse rate, the general symptomatology and the result of the physical examination help in estimating the resistance of the patient to operative intervention. (The rate of metabolism is of no value in this respect). Most important is that indefinite something which cannot be described and which is obtained only by close study of the patient, due largely perhaps to previous experience with thyroid disorders, that enables the surgeon to determine approximately what the case at hand can stand in an operative way.

To the exophthalmic patient who has not responded to rest and in whom the usual decline in the pulse and metabolic rate has not been noted iodine may be given in small quantities. The usual form in which this is administered is as Lugol's solution, the average dose being ten minims three times daily. This will in a large percent of cases hasten the period of remission or lessen the toxicity and sooner bring the patient into that condition where slight operative procedures may be employed without undue risk. Iodine should not be given to the degenerated toxic colloid goiter nor to the toxic adenoma.

The onset of symptoms in these latter two types of goiter is so gradual and the result of intoxication so insidious that when first seen degenerative changes have usually already occurred in the myocardium and nervous mechanisms. Prolonged delay in these cases only adds to the danger and they should be operated as soon as the resistance of the patient can be determined and the function of the cardio-renal system brought up to the point where it can withstand the added burden of operative trauma.

A most important advance in the surgical preparation and management of the bad risk goiter case was made by Crile. I now have reference to his method of "Stealing the Gland". There are many toxic goiter cases to whom the mere thought or mention of going to the operating room will so excite that the pulse will increase to an alarming rate and the heart action become exceeding bad. This is true especially of the toxic adenomata which as a rule occur in individuals at or beyond middle life. Then patient's can be successfully operated only by the method introduced and perfected by Crile. The procedure consists essentially of not telling the patient when the operation will take place and of going through the routine preparation each day, even to the starting of the anaesthetic in the patient's room. On

the day set the anaesthetic is given until the patient is well narcotized; the individual is taken to the operating pavillion where the necessary surgery is done and later returned to the room while still under the influence of the anaesthetic.

2. *Choice of Anaesthetic.* A most important feature in the operative treatment of the toxic goiter is the choice of anaesthetic. In many clinics general anaesthesia is preferred and ether is the one largely employed. In goiter work ether is not devoid of danger. In the first place it throws a heavy load onto an already diseased and weakened myocardium. Secondly tracheitis is a very common post-operative complication of goiter surgery and ether with its irritant effect on the mucous membrane of the respiratory tract may be followed by pneumonia and its resultant empyema. In some of the larger clinics where ether was formerly employed in all cases the goiter surgery is now being done either under local anaesthesia or local combined with gas-oxygen anaesthesia.

Local infiltration anaesthesia without its added burden to the heart and kidneys is undoubtedly the ideal anaesthetic. However, a primary requisite for the most satisfactory use of this type of anaesthesia, whether in thyroid surgery or operations of other types, is a good "Psycho-Anaesthetist" to calm the patient and to keep the attention of the individual directed toward things other than the operation in progress.

Were it not for the fact that so many patients with thyroid disorders are exceedingly nervous and apprehensive the field of usefulness of local anaesthesia in this type of surgery would be much larger. In the high-strung patient local anaesthesia alone cannot be employed. However, re-inforced by the administration of nitrous-oxide-oxygen to the point where consciousness is obtunded and psychic stimulation eliminated it is by far the most satisfactory of anaesthetics. The recovery from gas-oxygen is rapid, it has no irritant effect upon the respiratory mucosa, and in the hands of a good anaesthetist is practically devoid of danger.

In ligations where there is little trauma and where the time required to complete the work is not long local infiltration may be used in most cases. Even here, however, certain individuals are met who cannot stand the nervous strain and in these the loss of consciousness obtained by the administration of nitrous-oxide-oxygen is followed by a lower pulse rate and more regular cardiac action.

In the substernal goiter where there is interference with respiration and where the use of the accessory muscles of respiration is

necessary for breathing a general anaesthetic is contra-indicated. For general anaesthesia paralyzes the spinal musculature, i. e., the accessory muscles of respiration, and the movement of the diaphragm does not draw enough air into the lungs to supply a sufficient amount of oxygen to carry on the gaseous interchange necessary for life. Here indeed do we have a positive indication for the use of local anaesthesia, and it is only by the use of local anaesthesia that this type of case can be operated with a reasonable degree of safety.

3. *Arterial or Polar Ligation.* The first recorded operation on goiter is said to have been performed by Abul-Kassim in the tenth century. The origin of the procedure now known as polar ligation is usually credited to Woeffler (1886), but investigation of the literature reveals that ligation of the thyroid arteries was performed by a number of surgeons long before the days of the immortal Lister.

Unilateral or bilateral superior polar ligation now occupies a very important place in the surgical treatment of exophthalmic goiter. The technique of the procedure has practically been standardized and is so well understood that description seems unnecessary. Ligation can easily be done under local anaesthesia and in the more severe cases where the removal of the patient to the operating pavillion might cause unwonted excitation and acceleration of the pulse the operation may be performed in the patient's room.

Following superior polar ligation there usually occurs a decline in the pulse rate and a fall in the metabolic rate of ten to eighteen percent. This diminution in the pulse and metabolic rates is a gradual one and is best noted at the end of three to four weeks. The patient gains in weight, is less nervous, and the exophthalmos may become less noticeable. The result may in small part be due to diminution of the blood supply, but interruption of the innervation is largely responsible for the benefits noted. At times ligation of both superior poles may bring a remission of symptoms and the patient be perfectly well for six months to a year or more. Were this due only to diminution of the blood supply it would be logical to assume that the symptoms would recur as soon as the collateral circulation became well established, which at the most would be only a few weeks. For it has been demonstrated that the thyroid has an exceedingly rich arterial and venous circulation with extensive anastomosis not only with vessels of the same side but also with those of the other lobe.

Mastin states that the secretory activity of the thyroid gland is under nerve control. These nerves are derived from the cervical sympathetic and enter the gland along with the superior thyroid arteries. Reinhard in his experiments on dogs has demonstrated that chronic irritation of the cervical sympathetic causes hypertrophy of the corresponding thyroid lobe. Total extirpation of the sympathetic was followed by a reduction in the size of the corresponding lobe of the thyroid and reduced colloid content. He advocates resection of the superior and middle ganglia of the cervical sympathetic as an effective means of treatment and his charts apparently justify this view. From his experimental and clinical experience Reinhard concludes that the most skeptical cannot fail to be convinced that the cervical sympathetic is especially responsible for the pathogenesis of exophthalmic goiter. Superior polar ligation not only interrupts the blood supply but also severs the nerves coming from these ganglia and entering the gland.

In a few clinics ligation of the inferior thyroid arteries is practiced as a preliminary to thyroidectomy in addition to ligation of the superior poles. What benefit results is directly due to diminished circulation. In this country ligation has been limited to three vessels at the most and very satisfactory results are reported. One is cautioned against ligating all arteries at the same time. In addition to the immediate effect noted on the toxic symptoms, it is claimed that there is distinctly less bleeding at subsequent thyroidectomy when the inferior thyroid arteries have previously been ligated than in those where this procedure has not been practiced. The writer has had no experience with inferior thyroid artery ligation, it being his belief that better results were obtained by resection of one lobe, the operative risk being about the same in each case.

Giordano and Caylor studied the histological changes in thyroids which had been ligated and compared them with the pole upon which no ligation had been done. In about seventy percent of cases (33 of 50 studied) there were definite involutionary changes in the ligated pole, in the other thirty percent no marked changes were noted. They concluded that where these changes occurred the benefit from ligation was more decided. However they could not explain why benefit occurred in the remaining thirty percent, there being no noticeable changes in the histopathology.

While it is the view of some surgeons that cures are obtained by ligation, especially where three or more vessels are ligated, it is

the consensus of opinion of those doing thyroid surgery that ligation is not a curative measure. It represents merely an important step or safe-guard in the surgical management of exophthalmic goiter. Ligation is of little or no value in the treatment of toxic adenomata or in the intoxications of the degenerated colloid goiter.

Thyroidectomy. Thyroidectomy may be divided into a number of procedures which though not strictly what the name implies are done through the same method of approach and consist in the removal of one lobe or a part of a lobe. Thus we may have partial unilateral thyroidectomy or the resection of one thyroid lobe, unilateral thyroidectomy or as commonly referred to "lobectomy", and, what is usually done, namely lobectomy," on one side and resection of the other lobe.

In treatment of toxic degenerated goiters of the colloid type and toxic adenomata thyroidectomy will apparently remain the only curative procedure. In exophthalmic goiter the constant advances being made along the line of organotherapy, and advances which may come from increased knowledge of the etiology of this malady and the physiology of the thyroid gland may result in some newer and better form of treatment. Up to date, however, thyroidectomy seems to be the only treatment which offers permanent relief.

The technique of lobectomy is not difficult nor is it attempted by any especial dangers provided the operator is familiar with the neck and its surgical anatomy. Perfect asepsis must be maintained and hemorrhage effectively controlled. It must be remembered that the thyroid gland though relatively small has a tremendous blood supply, and furthermore, that the veins are short, thin walled, and empty into the large venous trunks in the neck. They may be easily torn and excessive hemorrhage ensue. Moreover, in thyroid surgery the utmost gentleness

should be employed to prevent squeezing into the circulation large amounts of the stored secretion. In addition, care must be taken to prevent injury to the parathyroids and the recurrent laryngeal nerve. Here it may be stated that while injury to the recurrent laryngeal nerve may be done in its course on the posterior aspect of the thyroid gland it is probably more often injured by clamping with a forcep near the level of its entrance through the crico-thyroid membrane.

In practically every exophthalmic and in all toxic colloid and adenomatous goiters thyroidectomy is the essential prerequisite to permanent relief. Less heroic measures innumerable have been faithfully tried and

found ineffectual. In the adenomatous goiters the diseased tissue may be limited to one lobe and if so, unilateral lobectomy is sufficient to cure. Just how much should be removed depends upon the pathology seen when the gland is exposed. (It might be well at this point to emphasize the fact that the size of the gland has no relation to the severity of the intoxication). In the adenomatous types it is not difficult to decide how much gland to remove as the tumors are plainly visible or palpable. In the severe cases it is better to err on the side of safety than to overestimate the resistance of the patient and do too much. Speed in operating counts a great deal in this character of work and is essential in the bad risk cases.

As is well known exophthalmic goiter is subject to frequent remissions and exacerbations of clinical manifestations. Thyroidectomy should never be undertaken during an acute exacerbation or at the height of the so called wave of hyperthyroidosis. In the larger percentage of cases haste is an unimportant and unnecessary factor. Thyroidectomy should be deferred until the period of quiescence arrives or is induced by rest, medication and some of the less severe surgical measures. Goiter operations, except in rare instances where dangerous pressure symptoms become suddenly manifest, cannot be classed as emergency operations. The statement sometimes made and often heard that "the patient was rushed to the hospital and immediately operated as a life saving measure," is not only misleading but a deliberate untruth; it savors of chicanery, of charlantry, of cheap advertisement, of self aggrandisement, —something which should be discountenanced by honest and self-respecting medical practitioners.

The question naturally arises, when does the goiter case become surgical. All goiters in which toxic symptoms; the cardinal three of which are rapid pulse, nervousness and tremor become evident are surgical, or as Crile has put it, the toxic goiter becomes surgical as soon as the diagnosis is made. They should be sent to the hospital as soon as possible and there proper preparation made for operation. Some may be operated in a few days, in others it may be necessary, on account of the severity of the intoxication and the damage already inflicted upon the vital organs, to use all the known safe-guards to bring the case to a successful termination. Thorough preparation, anticipating emergencies before they arise; carefully graded operation, and by this we mean ligation of one pole followed later by ligation of the other

pole, and after a few weeks of rest by thyroidectomy; and the use of gas-oxygen plus local anaesthesia offers the severe toxic thyroid the greatest measure of safety.

ORIGINAL ARTICLES

INTRACRANIAL HEMORRHAGE OF THE NEWBORN.*

By JAMES H. PRITCHETT, Louisville.

The campaign for Better Babies throughout the South has been far reaching in its effects. No longer is the newly born handed over to a doting grandmother or some long tongued neighbor for future care, but the infant has become a constant and immediate care of the physician. We recognize now that the baby should receive as much early care if not more than the mother. This is as it should be. The men of tomorrow have come into their own. The medical profession must interest itself in the care of the newly born if the future population is to be considered. The saddest pages of the history of medicine are those concerning the mentally deficient and paralyses of childhood. Among the etiological factors of such conditions: intracranial hemorrhage of the new born stands prominent.¹ (No greater menace jeopardizes the life and future well-being of the newly born child than intracranial hemorrhage, with its trail of suffering, idiocy, epilepsy, paralysis and death). The frequency with which intracranial hemorrhage occurs has been under-estimated. It has been stated that 1 to 5 percent of all newly born are subject to this disaster. Warrack² states that in their series of autopsies they found 25 to 50 percent showed intracranial hemorrhage. Another series showed that 76 per cent of deaths in the newly born were due to cerebral hemorrhage. These figures show us the importance of this subject and at the same time points to neglect on the part of the profession. Huenekins well says, "The recognition of hemorrhage especially cerebral hemorrhage is a most neglected phase of care of the new born and one on which too much emphasis cannot be placed." Some months ago we began a routine measure the bleeding and coagulation time of all newborn at the Louisville City Hospital, likewise a routine lumbar puncture is done on all instrumental deliveries and cases showing much distortion of the head. We are firmly convinced by our studies to date that such procedure is of great

*Read before the Kentucky State Association, Louisville, September 22-25, 1924.

help both prophylactic and diagnostic. Our series which we hope to publish later shows thus far six cases of hemorrhage, four cases recovered apparently completely. One case, an instrumental one died 3 hrs. after delivery. Our diagnosis was confirmed by autopsy. At this writing one of the series a premature, who as far as hemorrhage was concerned has recovered is having a stormy time otherwise.

ETIOLOGY

There are several factors contributory to intracranial hemorrhage of the newborn. For the sake of simplicity we may state there are three main causes:

1. Hemorrhagic tendency or hemorrhagic diathesis of the newborn.

2. Trauma, as spontaneous delivery, forceps, breech, prolonged labor and according to Neff and Porter the use of pituitrin.

3. Combined; That is hemorrhagic tendency plus mild trauma. This perhaps is the most important and frequent cause, for we frequently find intracranial hemorrhage following easy normal delivery.

Most Hospitals show that where the mother receives prenatal care the infant does better. Our experience bears this out, for the prenatal clinics at the City Hospital are doing a great work and as most expectant mothers are in attendance at the clinics sometime before entering the Hospital, they are well prepared and fortified before delivery. Such thorough care of the mothers means better babies.

LOCATION OF HEMORRHAGE

Brady⁴ points out that the hemorrhage may be in one or several places such as the brain itself, in the ventricle, under the dura or arachnoid; at the convexity or base. Seitz symptomatically classifies intracranial hemorrhage into four classes:

- 1—Supra-tentorial.

- 2—Infra-tentorial.

- 3—Combined.

- 4—Lateral ventricles.

In the supra-tentorial type the hemorrhage is due to injury to veins entering the superior longitudinal sinus. In the infra-tentorial type, the hemorrhage is from or near the transverse sinus and the margin of the tentorium; the blood spreads over the cerebellum medulla and into the spinal canal.

SYMPTOMS

We should bear in mind that the symptomatology varies greatly, the onset may be immediately after delivery, the so-called massive hemorrhage with severe symptoms.

Many such cases pass rapidly from bad to worse and die quickly. The most frequent symptoms are those of delayed hemorrhage. That is, the infant seems normal for the first 12 or 24 hours, then pressure symptoms arise; these are most often noted as follows: Disinclination to nurse, frequent screams, fretfulness, muscular twitchings, especially the face, disturbed respiration, palor, convulsions. Frequently a bulging fontanelle, but more often fontanelle gives a board like tension on palpation. Such symptoms usually suggest hemorrhage of the supra-tentorial type, often the clinical picture is that of a lethargic infant almost stuporous, cyanotic, unwilling to nurse, trouble in swallowing, marked respiratory disturbance varying from rapid and shallow to slow and deep efforts and convulsions. Such symptoms suggest hemorrhage of the infra-tentorial type. Prolonged bleeding and increased coagulation time of course are important symptoms.

DIAGNOSIS

It must be stated the hemorrhage often exists and yet the clinical picture does not help us. The severe cases with bulging fontanelle, cyanosis and convulsions are easily diagnosed. The following points will be of help in arriving at a diagnosis. First, history of delivery, especially when rapid or forced or those occasioning much trauma. Second, increased coagulation and prolonged bleeding time. Third, an infant who presents the clinical picture of disinclination to nurse, apathy, cyanosis, muscular twitching or convulsions, bulging fontanelle, any one or two of these symptoms should suggest hemorrhage. Fourth, lumbar puncture. This procedure is of considerable value in diagnosis. A clear fluid if increased pressure is noted is suggestive. If there are still signs of hemorrhage despite absence of bloody spinal fluid ventricular puncture may reveal hemorrhage, with proper lumbar puncture technique a bloody spinal fluid is diagnostic.

TREATMENT

Prophylactic—The old adage that "An ounce of prevention is worth a pound of cure" is very applicable here. Our hope in the future lies in better obstetrics, hospitalization of obstetrical cases whenever possible, bleeding and coagulation tests in the first 24 to 48 hours on all suspicious cases and lumbar puncture on the difficult instrumental deliveries. This last mentioned may sound somewhat cold blooded especially when the family see no symptoms justifying this procedure. Let it be mentioned here that frequently when the need of lumbar puncture

ture is great the family object and often times much persuasion must be used to show them the why and wherefore.

GENERAL CARE

Every new born should be carefully watched. If hemorrhage is suspected the infant should be kept absolutely quiet, not handled and should not be put to the breast but fed through a Breck feeder or large medicine dropper. Heat applied to extremities. Such measure should be carried out 8 to 10 days. At times chloral hydrate or bromides are indicated to relieve convulsions and restlessness.

SPECIAL TREATMENT

Footes, suggests the use of 20 cc whole blood as a precautionary measure in rapid prolonged or instrumental deliveries. In the event that the bleeding time is prolonged, that is over six minutes or the coagulation time increased beyond nine minutes, even without symptoms of hemorrhage, it is a good plan to inject subcutaneously 15 to 20 cc. whole blood. When symptoms appear immediate injection of whole blood subcutaneously or intra-peritoneally and in the presence of severe symptoms citrate of blood should be given intravenously. The superior longitudinal sinus being the most accessible, the danger by way of the sinus is minimized when compared to the gravity of the situation. By the use of the Goldbloom needle the danger attending the puncture of this sinus is moderately lessened. There is said to be little or no danger from hemolysis or agglutination. Pierce, states "The fact is now well established that the blood of the new born will absorb without hemolysis or agglutination in the blood from a donor of any group so the blood of the father or mother can be used with impunity. Repeated blood injections can be given according to symptoms and to improvement. Lumbar puncture should be done early, and if the fluid is bloody and under pressure, can be repeated in 8 to 10 hrs. It is of much value even in the supra-tentorial type. Ventricular puncture has been recommended in the supra-tentorial type and it has been suggested that failure to obtain spinal fluid through lumbar puncture a cisternal puncture can be done.

SURGERY

If the bleeding and coagulation time are normal and we can more definitely locate the seat of hemorrhage a decompression operation is indicated. While the risk of such a procedure is necessarily great many cases

of recovery have been reported. The writer recalls one case, coming under his own observation; a physician's son who gave a definite history of cranial hemorrhage. Nothing was done to relieve this condition. Sometime later paralysis was noted and the infant sent to Children's Hospital for detailed observation. A diagnosis of previous cerebral hemorrhage was made. A decompression operation was done by Drs. Frank and Boulware and the last report from the father the child had greatly improved. This case is mentioned to show what may be done in seemingly hopeless cases.

CONCLUSIONS

1. Intraeranian hemorrhage occurs much more frequently than is thought.

2. The most important etiological factors are hemorrhagic diathesis, trauma, as instrumental delivery, breech, protracted labor or a combination of these two.

3. The symptoms usually seen are disinclination to nurse, apathy, disturbed respiration, muscular twitching, bulging fontanelle, convulsions, prolonged bleeding time, increased coagulation time.

4. Diagnosis depends on history of delivery, abnormal bleeding and coagulation tests, clinical symptoms, lumbar puncture.

5. Treatment-prophylactic, better obstetries, prenatal clinics of great value. Whole blood injections, lumbar puncture, surgery in selected cases.

6. To emphasize again the importance of special care and attention to the new born.

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DISCUSSION.

J. Garland Sherrill, Louisville: This subject is of interest to every one. I don't know how you gentlemen feel about it, but tapping the cisterna magna or even tapping the longitudinal sinus is not as simple as it sounds. Of course, as I get older I get more conservative, but I don't want anybody puncturing around in mine, and I don't believe if you can get along without it that there should be a tapping of the cisterna magna.

The time to check or prevent hemorrhage in the newborn is before the birth. The time is coming when the X-ray will be used to

determine the size of the pelvis, the size of the child, the relative proportion between the two, and when there is a disproportion that will produce a difficulty of labor, pressure on the skull of the child, and hemorrhage in the cranium, these patients will be delivered by Cesarean section on the mother, preventing intracranial hemorrhage, rather than to attempt to cure or relieve intracranial hemorrhage in the new-born after it has occurred.

Dr. Pritchett has presented this in a remarkable way and has given you the general opinion of the present day, and yet I wish to emphasize the fact that any surgery upon the new-born babe is dangerous surgery, extremely likely to be followed by fatality, and it does not appeal to people generally. A trephining operation for lifting the bone or the cartilage, as it may be, or opening the skull to relieve pressure is not a simple thing.

In giving blood into these cases into the vein, into the superior longitudinal sinus, it should not be done to the extent of increasing intracranial pressure and blood vascular pressure within the cranium, because you may increase the hemorrhage. The reason for using blood in these cases is to control hemorrhage. You therefore inject a small quantity.

Recently it has been proposed to do intraperitoneal transfusion. That, however, is a method that has not been tried out and is yet to be determined.

I wish to emphasize again, in line with Dr. McCormack's general measures, that here is the place for prophylaxis, and certainly a stitch in time saves nine.

Philip F. Barbour, Louisville. I think Dr. Pritchett has brought to our notice a very important thing, and that is the possibility of hemorrhage in the brain of the new-born child. We all see these children that die a day or two days or three days after birth, and up to a few years ago they were allowed to die without thinking that we were in any way responsible. Now we know there are certain definite symptoms of cerebral hemorrhage. Dr. Pritchett has brought out most of these. The one that has seemed to me to be the best point so far as my own diagnosis is concerned has been the interruption in the regularity of the respiration and of the pulse. Whenever a baby's respiration gets down to six or seven to the minute, we are almost dead sure there is a hemorrhage in the brain.

The muscular twitching that he has spoken about of course is a valuable help. The inability of the child to swallow is also another valuable help, all showing evidence of pressure in the cerebral area.

Lumbar puncture is a life-saving measure in these cases. It is very simple and easy to do

in a new-born baby. It is very much easier to do than it is to get the parents to allow you to do it.

Most men doing the lumbar puncture introduce the needle straight into the spine. When you introduce your lumbar puncture needle it must always go upwards and inwards. I have seen men try to go straight in, with failure, of course.

Any child that is born after a very difficult labor should arouse our suspicion of the possibility of a hemorrhage, and we should be on the lookout for it. If that baby fails to nurse and fails to breathe and its pulse becomes very irregular, we are warranted in making a diagnosis and making a puncture.

If you have to introduce blood into the child, the safest place to introduce it is through the umbilical vein rather than through the superior longitudinal sinus. I confess I have a little hesitancy about anybody puncturing the superior longitudinal sinus in my head, especially if there is a tendency to hemorrhage. If you can be sure there is not going to be a bleeding from that vessel, it is perfectly safe to introduce your blood into the umbilical vein. If you have to get blood into the child, get it in through that source. There will be far less danger than going through the route of the superior longitudinal sinus.

J. W. Bruce, Louisville. There is just one point that occurs to me in connection with intracranial hemorrhage of the new-born, an especially important point, and that is the value of cyanosis of the new-born as a diagnostic point in this condition. We are inclined to think that cyanosis is explained by the fact that the foremen ovale stays open. That is a story that has been in the text books for years, but we now believe that probably the foramen ovale has very little to do with cyanosis of the new-born. It is probably due to intracranial pressure from some cause, either hemorrhage or edema, and, of course, if it is edema the edema will subside and not amount to anything.

Atelectasis, of course, can always cause cyanosis in new-born babies, but atelectasis is not a common thing. When you think of the cases that you have seen that were really atelectasis, there are not very many of them, and it is really not a very important cause of this condition.

As to the lumbar puncture, that, as Dr. Barbour has said, is not a very difficult thing to do as a rule. However, sometimes you will find cases that are very, very difficult to get into. The ventricular puncture I have never found very valuable. It doesn't seem to hit the point where you need it. When you put a needle through the fontanel into the ventricle, it doesn't seem to hit the place that requires relief of pressure. The blood is usually over the top of the

brain on the convexity, and when you put a needle down into the ventricle you don't strike the point that needs relief at all, so that I have never found a ventricular puncture to help very much.

On the other hand, a cistern puncture seems to me to be the thing that we will probably come to in course of time. The cistern puncture, as you know, is where you insert the needle just beneath the occiput. It goes in, and the point it strikes is the cisterna magna, which lies just beneath the medulla and the cerebellum.

The needle has to go in further, of course, than it does on the spinal puncture. It has to go in about three-quarters of an inch, but I never have seen any bad results come from that, and you can certainly get a good flow of spinal fluid.

Edward Speidel, Louisville. This subject is very interesting from the obstetrical standpoint, because I believe there is one feature of the situation that is not definitely understood. We formerly used very strenuous efforts in the resuscitation of the asphyxiated infant. When we understand now that asphyxia in the infant is largely a sign of beginning intracranial hemorrhage, then we appreciate the fact that very gentle measures should be used in the resuscitation of an asphyxiated infant, and the methods that we practically use at the present day consist simply in laying the child that does not breathe on its right side and covering it warmly and allowing it to lie in that position for five or ten minutes undisturbed, and then if we use any means of resuscitation, they are the simplest kind: hanging the child by the feet and spanking it is no longer proper. The Schultze swinging method is absolutely contraindicated in these cases, because it may precipitate a larger hemorrhage and result in the death of the baby.

These intracranial hemorrhages are due to the process of labor, not always interference in labor, because in the ordinary labor the long continued labor, in which the head is pounding upon the perineum for a half hour or longer, you often have an asphyxiated dead baby which upon autopsy shows intracranial hemorrhage, but, of course, it is more frequent in those cases in which precipitate labor or violent labor pains occur in consequence in which too much compression was used in the application of the forceps. That is one reason why we are finding that version, and when it does not even enter the pelvis we find that Cesarean section is indicated not only for the sake of the mother but for the protection of the child from this hemorrhage.

Morris Flexner, Louisville. The first point I want to make is that the thing is not obscure but any one can tell there is something material-

ly wrong with the child, and, as a rule, the first thing to suspect, is some intracranial lesion.

Second, it does not take any time to test the coagulation time of the blood. That is a very simple thing, and, of course, if it is prolonged, lumbar puncture should be done at once and blood in some other form or other given.

Recently I saw a child after a forceps delivery; two days afterwards the child began to twitch on one side of its body. The first twenty-four hours it was absolutely normal, but it began to get this little twitching on one side of the body which became more and more regular. Lumbar puncture in that child absolutely cleared the whole thing up. Such a procedure, which is so simple, might obviate something in future life might be very, very severe.

Dr. Bruce has mentioned cisterna magna punctures. While they may sound a horrible procedure to the average person who has never done or done one, they are not as bad as they sound. Dr. Brady, whom Dr. Pritchett mentioned, has done any number of them. I heard him tell of a case in which he did this three days after delivery, from which he got an ounce of blood partly coagulated. The child went on to recovery, so with all these arrows in our quiver we hope sooner or later we will see less Little's disease.

James H. Pritchett, Louisville, Closing. I wish to thank if I may be allowed to add one or two things which came to me this morning, I should like to. In this morning's mail I received "A Survey of Pediatrics" which contains an article by William Sharp, a Duro surgeon, who says that in a great many cases we will obtain only a yellow fluid, and that it is almost as diagnostic as a bloody fluid.

Late Congenital Syphilis.—The classical stigmas of congenital syphilis are described by O'Leary, and statistics are given as to the frequency with which certain of the stigmas are found. The serologic findings in a given group are emphasized in order to impress the fact that if only the Wassermann test of the blood is depended on for diagnosis only 70 per cent of the cases of late congenital syphilis will be diagnosed correctly. Neurosyphilis was revealed in only 14 per cent of the children examined serologically, in contrast to 32.7 and 28.8 per cent, respectively, as reported in the literature. Attention is called to the need of corroborative aids, such as examinations of the eye and ear, roentgen-ray examinations, and serologic tests in certain of these patients.

THE TEETH AS FOCI OF INFECTION AND IRRITATION.*

By LEON K. BALDAUF, AND A. P. WILLIAMS,
Louisville.

Those physicians who have been attending medical meetings regularly, realize that there is no subject more prominently before the medical profession than focal infection. Those who have studied the discussions thoroughly, and have analyzed the criticisms, are convinced that where there are failures, these failures do not concern focal infection but are due to routine examination which has been faulty and incomplete. Either there are multiple foci, or other conditions more important than the slight focus, are responsible for the clinical conditions.

The paper which we shall present this evening will be an attempt to show a relationship between abnormal dental conditions and disease, and to show that not only pulpless teeth may be the source of trouble, but that abnormal vital teeth may be the cause of symptoms. The attempt will also be made to arrive at some uniformity in conclusions based not only on our own experience, but particularly on the experience of a large number of internists and exodontists.

In order that the viewpoint of others might be obtained, the following questionnaire was mailed to about three hundred internists and exodontists of large experience.

1. Do you believe all pulpless teeth should be extracted?

2. If not, what would be the indication for the removal of a pulpless tooth?

3. Should only a few pulpless teeth be extracted at a time or do you consider it without danger to extract a large number at one sitting?

4. Do you believe that small apices of vital teeth remaining after extraction are a menace to the health of the patient?

5. What percentage of impacted molars do you find producing neuralgias?

6. In this connection is there any difference between the upper and lower molars?

7. What percentage of teeth with pulp stones do you find causing reflex pain?

8. To what do you attribute the production of excrementosis?

9. What is your opinion concerning osteosclerotic areas?

The whole question of systemic involvement the result of dental foci is at present somewhat clouded by contradiction, and it is only by a more thorough co-operation between the physician and the dentist that the

problem can be settled. All tissues when sufficiently injured eventually die, and the alveolar or supporting tissues of the teeth are no exception to the rule. The vulnerable point is the border of the peri-dental membrane just below the free gum at the crest of the alveolus or around the neck of the tooth. The peri-dental membrane is of vast importance as upon its health the life of the tooth and its resistance to disease depends. If the membrane becomes irritated, injured or infected it may die, and dying cause the death or absorption of a similar area of the alveolar process. This means a space or pocket under the margin of the gums in which food, debris and bacteria find lodgment undisturbed by currents of saliva moving freely around the teeth; in other words, pyorrheal pockets. Since Noyes has demonstrated definitely a network of lymphatics in peri-cemental tissues extending to the extreme border of the gingiva, there can be no doubt of the entrance of bacteria through these vessels into the blood stream. There seems to be evidence to prove that pyorrhea alveolaris may give rise to systemic symptoms in three ways: 1st. By the constant formation of pus in the mouth and its subsequent passage into the intestinal tract. 2nd. Through the absorption by the lymphatics of the bacteria and their toxins, and 3rd. By the pumping action of the teeth in their pockets during mastication, forcing the bacteria and their toxins into the capillaries and thence into the circulation itself.

In discussing the removal of pulpless teeth, we must consider several groups of dentists and physicians.

1. Those who advocate the removal of all pulpless teeth,

2. Those who recommend the extraction of a pulpless tooth even though no abscess is present, if after careful examination symptoms cannot be otherwise accounted for.

3. Those who consider only the extraction of teeth with definite granulomata.

4. Those who refuse to remove pulpless teeth and attempt to treat them.

Those who would remove all pulpless teeth, we might say, belong to a very small group of exodontists and other dental specialists. The stand which they take may be justifiable. They maintain that every pulpless tooth is a potentially dangerous tooth; that there is always the possibility of infection being present, and, that likelihood in mind no chance should be taken. Lucas, of Indianapolis, who has done beautiful and painstaking research, has shown that apices of devitalized teeth not granulomatous may show on culture, repeatedly, micro-organisms in pure culture.

*Read before the Jefferson County Medical Society.

Whether or not the stand taken by this group is too radical, it is essential to bear this fact in mind, that extreme care should be exercised in recommending the removal of pulp. Especially should this be borne in mind when doing bridge work. Frequently bridges are built between devitalized teeth; One of these pulpless teeth may develop a granuloma, extraction is necessary and with that the loss of expensive bridge work. In other words, it seems proper that in all bridge work which is to be done the teeth on which the bridge is to be suspended should, if possible, be vital.

As to the second group. In discussing the removal of devitalized teeth where no granulomata exist and where symptoms cannot be accounted for, the whole question of focal infection must be touched upon. In frequent instances many teeth have been sacrificed and still symptoms persist. This may be due to failure to recognize the multiplicity of foci. These may exist in the gums, the accessory sinuses, the prostate and the gastrointestinal tract. The true focus may not have been recognized and the persistence of symptoms may have been the result of a too superficial examination. In other words, frequently a number of teeth have been extracted and following extraction the symptoms have not been relieved. This is most likely due to the fact that the real focus had not been uncovered and that the teeth had been removed for an insufficient cause. The consensus of opinion seems to be that where a most careful history and physical examination has been made, and where the symptoms point to a focus of infection, and, where the only focus possible seems to be a pulpless tooth which does not present a granuloma, that all other foci being eliminated we are justified in removal of that pulpless but non-granulomatous tooth.

Third group. They would remove only the granulomatous teeth. Surely this is a safe stand to take. We have all seen the marvelous results which followed the removal of abscessed teeth. How many obscure cases have been clarified following the removal of teeth. Certainly, even a number of rare diseases, now unknown to be due to infection, have been entirely explained after the removal of diseased teeth. I shall give a case in point. A child about twelve, showed definite signs and symptoms of Henoch's purpura. In connection with the hemorrhage beneath the skin of the extensor surfaces and the albuminuria, there were distinct abdominal symptoms. A diseased upper incisor was found and communicating there with sinus from which pus could be

expressed. Removal of this tooth and curettement of this sinus was advised. Following this operation the symptoms became aggravated, the hemorrhage beneath the skin became more evident, and there was a profuse intestinal hemorrhage. The condition of the child became serious. In time, however, these symptoms lessened and after a few weeks all the signs and symptoms of purpura disappeared.

The fourth group. This concerns those who would treat an abscessed tooth. This group we feel belongs, for the most part, to the dental profession. With this group the medical men have no sympathy. Assuming that in a certain time the infection will subside, what will be the possibility in the meantime? Are we justified in subjecting the patient to the danger of a vegetative endocarditis or other conditions equally incurable, while we are treating an infected tooth? It is known that we have an infected area and the sane thing to do is to remove the focus as soon as possible. Summary of the conservative, rational conclusion which obtains at present is as follows:

1. All granulomatous teeth should be removed.

2. It is dangerous to temporize with abscessed teeth. Delay in their removal may result in irreparable damage. It is questionable whether an abscessed tooth can be rendered sterile.

3. Given a very thorough and satisfactory examination, and no other focus being discovered, if a non-granulomatous pulpless tooth is the only possible focus, we are justified in its removal.

4. All pulpless teeth, non-granulomatous, should be carefully watched. X-ray examination should be made at stated times, and if symptoms appear of granulomata, the pulpless tooth should be removed.

Should only a few pulpless teeth be extracted at a time, and is it dangerous to extract a large number at one sitting? It has been clinically observed that following the removal of a granulomatous tooth that the symptoms which were present have been exaggerated. This fact has been emphasized so frequently that both the exodontists and internists feel more sure of a satisfactory result when these aggravated symptoms develop. Symptoms, however, following extraction differ with individuals, and it seems sane and proper where the vitality of the patient has been reduced, that only a few teeth be extracted at a time and that as little infection as possible be "stirred up".

In regard to roots: The possibility of roots being the source of symptoms has been

emphasized particularly in the last few years. With the introduction of gas, by exodontists, the attempt has been made to remove the teeth as rapidly as possible; to keep the patient under the anesthetic for as short a time as possible, and to get the patient out of the operating room as quickly as possible. As a result, unfortunately, a number of roots have been left in the jaw and not only have the symptoms not been relieved, but in many instances the conditions have been intensified. These facts have been so frequently emphasized in the last few years that where we have suggestive symptoms, we make it a routine, especially where the exodontist is known, not only to X-ray suspicious teeth, but to X-ray the gums where the teeth have been extracted. To emphasize this fact, I would like to report three cases:

A patient suddenly had extreme pain in the right half of the head; the pain was so severe that morphine was required. Following this there was dull aching pain which continued for a couple of months until the time she saw me. The patient was a daughter of a physician and on that account an especially careful examination was made. The examination was practically negative and in despair we told the patient that the only thing left was to X-ray the area where a tooth had been extracted. We found there the roots of a lower molar with a definite granuloma. The roots were extracted and within six weeks the pain entirely disappeared.

A patient complained of pain in the side of the head and the urine showed considerable albumin. All the teeth had been extracted; careful X-ray examination was made and revealed roots of a lower third molar. Around these roots, on the operating table, a large cystic granuloma was found. Two weeks following the removal of these roots, the pain in the head subsided but the albumin had not completely disappeared.

Another case illustrating the importance of thorough examination for roots. A patient came to me complaining of pain in the back of the neck and in the thumb and first finger. The location of the pain and its extension upward along the arm suggested pressure on the fourth cervical. After a very careful examination nothing was found to account for this neuritis and as a last resort X-ray examination was made of areas where teeth had been extracted. A third lower molar root was found surrounded by a cystic area, and in removing the roots the elevator slipped into a cavity in the jaw. Forty-eight hours after this pocket was everted the pain was decidedly lessened and

in 4 or 5 weeks all symptoms had disappeared. Now, after six months, there is just a faint hyperaesthesia of the thumb and finger.

Another case: A physician whom you all know was suffering with multiple arthritis and all sorts of diagnosis were made. Finally a very small sliver of a root was found in the lower jaw, which, for some reason, or another, was rather difficult to remove. After every attempt at removal the joints would become swollen and tender. Finally, with its removal and of the surrounding diseased tissue, the joint condition completely subsided.

The point which we would like to emphasize is this: When from the symptoms we find that we are dealing with a focus of infection and we are permitted to make a thorough examination, no examination is complete which does not include X-ray examination of areas where teeth have been extracted, for in a good percentage of these cases, recently, roots have been found and in many obscure cases the removal of these roots have resulted in the relief of symptoms. So much as to the removal of devitalized teeth.

We need refer now to pulp stones and impacted teeth. The subject of impacted teeth, especially of impacted molars, has not received the attention of the medical profession which it deserves. Of the numerous questionnaires which were sent to one hundred fifty internists, the answers to the consideration impacted molars were omitted in practically every case. The comment in many instances was that they had had no experience. The dental men, however, in more cases, reported with rather definite answers and the conclusion which they reached was that impacted molars frequently gives rise to symptoms of very severe neuralgia. Impacted molars are more common in the lower jaw, and for anatomical reasons impacted molars in lower jaw gives rise to greater symptoms than impacted molars in the upper jaw. The course of the inferior dental nerve gives rise to these differences. I should like to give a case in point which illustrates the importance of the study of molars. A patient came to me complaining of a very severe pain in the top of the head and in the face, the pain being more severe on one side, but to a certain extent it involved the whole head. This pain had existed for months with no relief. An extensive abdominal operation had been performed, a number of vaccines had been given and no relief. An impacted lower third molar, from the appearance of the jaw,

had been suspected, and X-ray examination revealed a molar, which according to the exodontist, could account for the pain. A few hours after the removal of the tooth, the pain was so severe that two or three hypodermics of morphine were necessary. The next week there was some relief from pain and at the end of two or three months there was complete relief.

In answer to the question, what percentage of teeth with pulp stones do you find causing reflex pain, no answers were received from the internists and only a few from the exodontists. These maintain that undoubtedly, a small percentage of neuralgias could be attributed to the presence of pulp stones.

In regard to excementosis. By excementosis we mean an hypertrophy of the cementum of the root of a tooth; a hypercementosis; an exostosis. The condition is not common and by some is supposed to be caused by trauma and infection. Dr. Meniffee Howard, of Denver, Colorado, in answer to this question makes the following report: "In Colorado we note this condition in practically all cases of patients with tuberculosis. In pulpless teeth, I have never observed a case of excementosis without the patient having some systemic disease." Whether this statement can be accepted, a case of Dr. A. P. Williams in this connection is extremely interesting. He removed two unerupted superior third molars, presenting extensive excementosis from the mouth of one of our local physicians who gave a history of bone tuberculosis.

The answer to our question in regard to osteo-sclerosis. Frequently, if say six months later, X-ray examinations are made of areas from which teeth have been extracted, dense opaque areas may be noted which are caused by a deposit of calcium salts. Unless the picture is carefully read they may be mistaken for roots. At first these deposits were supposed to be due to infection but the conclusion is reached now that these deposits are due to a faulty calcium metabolism. These osteo-sclerotic areas have been found very frequently.

One word in regard to the importance of the proper removal of the infected area. In the removal of the infected, soft tissues, exodontists have proceeded along different lines. Some do a simple extraction without curettment; others extraction with curettment, while others, as practiced in the Mayo clinic, rely on the open operation, bringing to view the infected area by removing part of the alveolar process. Where we are dealing with a granuloma, it is perfectly evident that to be relieved of infection, the

infected material must be surgically removed. The Mayo clinic believes that this cannot be done thoroughly by doing a blind curettment, but that the area should be brought fully to view by doing alveolar resection and removed as in any other surgical operations. Whether or not the radical view of the Mayo clinic is correct the difference in method emphasizes an interesting series of cases which we have recently studied. Teeth have been extracted, no roots have been left, and still symptoms have persisted. Careful X-ray examinations have shown that the infected soft tissue has not been completely removed and to account for the symptoms large granulomatous cysts have been discovered. In one case a large sac, probably 1-2 cm. in diameter, with a definite pyogenic membrane, was removed intact. Following its removal the symptoms were relieved completely.

The answer which we received from Gardner of the Mayo clinic, I think may serve as a fitting conclusion. "The nine questions that you have raised are deserving of very careful consideration and there is a tremendous amount of research going on regarding all the points that you have mentioned. Without a doubt, it would be at least two or three years before we would have sufficient data to enable us to answer these as you would like to have us answer them."

DISCUSSION

A. P. Williams, Louisville: I have brought a few lantern slides which will be shown in order to more fully demonstrate some of the dental lesions which have been described by Dr. Balduf.

Primarily I want to revert for a moment to the anatomy of the teeth and jaws. In the first picture the outer layer of bone has been removed showing the cancellous structure of the roots of the teeth beneath. The reason for there being no definite symptoms of pain in a pulpless tooth or an abscessed tooth that has become chronic is because the pus at the root of the tooth will seep through into the cancellous tissue of the bone, the bone cells will be destroyed, giving rise to no pain whatever unless there is formation of a sinus, or acute abscess as it is called, where there is swelling of the soft tissues due to the fact that the pus burrows through the outer layer of the bone and gets into the soft tissues and produces the symptoms of inflammation.

Other pictures are shown to more fully illustrate this point. Section has been made of the jaw, the teeth have been removed so that we can more readily appreciate the small spaces in the cancellous tissue. Especial attention is

called to the alveolar septum between the roots of the teeth, and the peri-dental membrane which lines the socket of the root of the tooth, as it is this tissue which is primarily involved in pyorrhea. The normal alveolar septum extends between the roots of the teeth and to look into the patients mouth no evidence of disease would be discovered; but upon radiographic examination it is found that there has been more or less destruction of peri-dental membrane and also of the bony process.

Every organism has its vulnerable area which if sufficiently injured will eventually cause death, and the peri-dental membrane and alveolus or supporting tissues of the teeth are no exception to this rule. The vulnerable point is the border of the peri-dental membrane, just below the free gum, at the crest of the alveolus, or around the neck of the tooth. The peri-dental membrane is of vast importance as upon its health and resistance depend the function and life of the tooth. If it becomes irritated, injured or infected, the membrane died and in dying causes the death or absorption of a similar area of the alveolar process. This means a space or pocket, under the margin of the gums in which food debris and bacteria find lodgment, undisturbed by the currents of freely moving saliva around the teeth.

We have believed in the past that the pulpless tooth showing a definite granuloma at the root end, by means of radiographic examination, was the tooth that should be removed, and the pulpless tooth showing no granuloma could be allowed to remain in the mouth of the host. We know positively today that the large granuloma at the root end is nature's attempt to wall off the infection, and while the barrier is not entirely impervious to the passage of bacteria and their toxins into the blood stream it doubtless has a restraining influence. While contrary to our former beliefs, the root end without the presence of a granuloma allows the entrance of infection into the blood stream without any apparent defense by the host.

When infected teeth produce disturbance in other parts of the body, it is not necessary that the quantity of infection be large for evidence at present suggest that soluble poisons may pass from the infected teeth to the lymph or blood circulation and produce marked reactions entirely out of proportion to the quantity of poison involved.

Dental infections involving root canals or their supporting structures practically always contain streptococci viridans, and we know today that when these organisms grow in root filled teeth for a long period of time that they tend to become anaerobic and in making cultures of these organisms that they will frequently not start to grow in aerobic culture in less than twenty to

thirty days, but will grow promptly under anaerobic or partial tentation conditions. We have been prone in the past to rely on the X-ray too much in disclosing dental infections, but we should remember that the X-ray will not always reveal the presence of infection in either soft or hard tissue.

There is little difference in the structure of a vital and a non vital pulp as revealed by the radiograph and teeth with very deep caries generally have their pulp involved and to be definite as to their vitality a test by means of the high frequency current should be resorted to.

George H. Heyman, Louisville: Dr. Baldauf's paper is one of the best of its kind that I have ever listened to. The data he has collected I am sure will be worth a great deal to the medical as well as the dental profession, because in a scientific way I believe he is the first man who has tried to collect data of this nature.

The question of focal infection is an old one; the question as to the amount of systemic trouble that may be evolved from pulp stones is a new one, and I believe it will be given a great deal of thought in the future in all where we fail to get a response when we are looking for foci of infection. I believe many teeth that show no irregularity, no granulomata at the apices or roots, we will find harbor pulp stones, that the pulp tissue has become diseased, thus constituting foci of infection. Many of us, in condemning teeth as foci of infection, have been leaving such teeth in the mouth. As we become more familiar with this subject, and by better interpretation of our radiograms, and in determining whether teeth are vital or not, we are removing more devitalized teeth and are securing better results.

I believe it has been said by someone that when looking for foci of infection, 71 per cent of the foci are found in the mouth or teeth, about 20 per cent in the tonsil, and only 9 percent in other portions of the body. Therefore, when searching for foci I believe we must pay particular attention to the mouth and eliminate that first, especially in view of the fact demonstrated by Noyes, of Chicago, and mentioned by Dr. Baldauf as to the intimate relationship between the blood and lymph supply of the periodental membrane and surrounding tissues. While I believe we may have a greater number of systemic troubles arising from apical lesions of the teeth, yet we must take into consideration the blood and lymph supply and the involvement of tissues around the teeth. Especially is this true when teeth are loose, because loose teeth are practically always involved in pyorrheal conditions. We must also consider deformity due to trauma or infection, where every time the individual closes his mouth the teeth approximate each other un-

equally thereby forcing bacteria directly into the lymph and blood streams.

In focal infection a great deal depends upon the resistance of the individual. Some persons can withstand a large amount of infection which may enter the blood stream, whereas others can stand very little.

I do not believe anyone is ever justified in removing the pulp of a tooth because of the possibility of its being a focus of infection later. By new methods which have been devised recently for making cultures—at the Mayo Clinic and elsewhere—they have found that in almost 100 per cent of cases they can get a culture growth from any tooth that has been devitalized for two weeks or more.

Octavus Dulaney, Louisville: The question of devitalized teeth is one of great importance. Inquiry should always be made as to whether or not any sinus work has been done prior to the removal of devitalized teeth. It is a well recognized fact that after operations on the nasal accessory sinuses, especially the antrum of Highmore, one or more of the teeth are anesthetized and appear devitalized, this is on account of traumatic damage to the nerve that supplies the teeth which extend along the floor of the antrum. Sometimes damage inflicted upon the nerve will cause the tooth to apparently lose its vitality for a few months, but recovery eventually ensues. This may require three, four or six months. Especially is this true where operation is done through the canine fossa, sometimes from intra nasal operations. If the incision is made too low along the roots of the teeth the teeth may become anesthetized. This rarely happens when incision is made higher and above the roots.

The primary focus may be in the tonsil or elsewhere in the body. When the original focus of infection is removed, and this is usually the tonsil, the patient begins to improve at once. If that is true of the tonsils it is equally true of the teeth. I am convinced that oftentimes teeth are apparently devitalized because of infected antra, on account of the anastomosis of the blood and lymph vessels. Disease of the antrum on one side may affect the teeth on the opposite side, that is infection may be carried through the lymphatics and cause involvement of the teeth on the opposite side. An apical abscess may develop or infection may extend upward and involve the pulp. If it is definitely determined in such cases that abscess of the pulp has healed, then if we overcome the antral infection the patient will recover. Where there are multiple foci of infection it is difficult to determine which was the original or primary focus, and unless one treats the antrum and overcomes the infection there, the eth-

moid or whatever sinus may be involved, infection may extend and the patient lose every tooth in his mouth. Rosenow has demonstrated that streptococci or any other infection having an affinity for bony tissue is very difficult to eradicate unless every possible point of infection is removed. If there exists an infected antrum, considering the nerve supply to the teeth, together with the lymphatics, arteries and veins that supply the teeth running along the floor of the antrum, quite naturally the tooth infection cannot be relieved unless the antrum is first treated. If the original focus of infection is in the antrum, even if there exists an abscess of the pulp, it will be safe to leave that tooth in the mouth. Of course where the periodontal membrane and the cementum are destroyed, that is unquestionably a devitalized tooth and must be removed; but abscess of the pulp does not always mean that the tooth should be sacrificed by any means.

Chas. C. Maupin, Louisville: We are all indebted to Dr. Baldauf for his excellent paper, and to Dr. Williams for the lantern slides he has shown illustrating the various dental lesions. For the proper study of this subject we must revert to the question of pathology. It is well known that disease cannot occur in healthy tissues. If we have dead tissues we must expect disease, and if teeth are devitalized or dead we must expect them to be attacked by pyogenic organisms.

I see no reason to quibble over the question of whether to leave or remove dead teeth. I believe dead teeth are a menace to the health of the individual and should be removed. This means that we must educate the people from a practical standpoint and tell them that they must give diseased teeth early attention. We have been preaching preventive medicine for years in regard to diseased tonsils, adenoids, etc.—let us now preach about the teeth. Personally it is my custom to tell people that it is important to have their teeth examined at frequent intervals by competent dentists. It is astonishing the number of people who have cavities in their teeth which are allowed to go untreated until the pulp becomes diseased, and of course when this occurs the teeth are devitalized and have to be sacrificed. The only way I can see to protect our patients is to tell them to have all dead teeth removed promptly. I say this first because we may not see the patient again, second because the patient may consult a dentist who may not recognize the danger of a devitalized tooth, put in a filling and it may remain as a satisfactory tooth so far as chewing service is concerned for several months or years. On the other hand, the pulp of that tooth may be diseased and the patient may have

an apical abscess and other complications. The only way to protect the patient is to have dead teeth removed.

The subject of pulp stones was something new to me until a short time ago. I had previously thought when a patient had pulp stone this meant exostosis. I have since learned that pulp stones involve the root canal and may exist without other pathology, or by pressure destroy to a greater or less degree the nerve and blood supply.

The question of focal infection has been studied for several years, and it has been of great benefit to us because it has made us think. Infected throats (tonsils and adenoids) are very often present in people who already have diseased mouths. It is quite probable less trouble would have developed in the absence of mouth infection.

Roentgen-ray pictures of the teeth do not always speak the last word. One roentgenogram may be made which gives absolutely no information. On the other hand, a picture taken from a different angle may show root abscesses or other types of pathology.

I have not sympathy with a man who attempts to treat dead teeth with apical abscess. There may be destruction of bony tissue around the teeth which gives support to the blood supply, etc., of which he knows nothing. So far as the care of these people is concerned the only way in which we can protect them against poor dentists or poor dentistry is to educate them to have all dead teeth removed.

Leon K. Baldauf, (Closing): I wish to especially thank Dr. Williams for coming here tonight to discuss my paper and exhibit the lantern slides. I know very little about the subject and wrote the paper primarily to ascertain something from others about the teeth. What little I do know about the teeth has been gleaned from close association with Dr. Williams and Dr. Heyman.

The most important point it seems to me is whether all devitalized teeth should be removed as soon as discovered or whether removal should be postponed until granulomata appear. This question has not yet been positively answered even by the exodontists. All are agreed, however, that devitalized teeth which are causing symptoms should be promptly extracted.

As to the question of systemic disease caused by the teeth: Systemic diseases, with the teeth as etiological factors, are growing more numerous every year. We sometimes encounter a series of cases of the same disease attributable to diseased teeth. I had five cases of vegetating endocarditis under observation at one time, four of them being due to infected teeth. In one there was a focus of infection in the tonsil. We cannot be too dogmatic in speaking of sys-

temic disease due to focal infection. The one place in this country where focal infection is studied better than anywhere else is in the Mayo Clinic.

So far as I have been able to determine, the question of focal infection is the biggest thing we have in medicine at the present time.

FOREIGN BODIES PERFORATING INTESTINAL TRACT: CASE REPORT.*

By E. S. ALLEN, Louisville.

It is unusual for a foreign body that has been swallowed to perforate the intestine. Generally when such an accident happens the patient is placed in charge of the roentgenologist, who observes the progress of the body through the alimentary tract and if it fails to pass, or remains stationary and causes symptoms, surgical intervention is resorted to before perforation occurs. The great majority of foreign bodies swallowed are extruded through the natural channel without the production of symptoms.

Without reviewing the literature I wish to report two cases, both patients operated upon for acute abdominal manifestations, the peritoneal symptoms being caused by foreign bodies perforating the intestinal tract with resulting circumscribed peritonitis.

Case I. B., a male, aged ten years, for six months had been subject (at frequent intervals) to attacks of abdominal pain thought by his mother to be "stomach ache" common to a boy of his age whose appetite was seldom satisfied. A purgative usually relieved him until on this occasion, when, after calomel and salts, there was no improvement, pain continued and a physician was called on account of persistent vomiting. A diagnosis of appendicitis was made. I was then asked to see the patient.

On the fifth day following his initial pain he presented the classical symptomatology of appendicitis, the entire abdomen was distended and very tender. Pulse 120, respirations 28, temperature 101 F. Leucocyte count 19,000, polymorphonuclears 90%. An operation was advised and patient moved to hospital. Under ether anesthesia a right rectus incision was made, pushing rectus medianward. A mass was encountered at head of cecum, composed of omentum, appendix and cecum inflammatory. The omentum was clamped near the mass, appendix removed and omental protection. As there was no soiling of the peritoneal cavity it was closed.

*Clinical report before the Jefferson County Medical Society.

The omentum was separated from appendix and about an ounce of pus freed from cavity at its distal extremity. A large enterolith was half in appendix and half in abscess cavity. The point of a pin protruded from end of enterolith which was thought to be a taek, and the nurse wittily remarked "taek appendicitis." We did not know the foreign body was a pin until the specimen had been examined with the roentgen-ray.

Case II. Mrs. M., white, aged sixty, was operated upon twenty-one years ago for uterine fibroma. The wound suppurated and a large ventral hernia resulted which had given her considerable inconvenience. On numerous occasions she had called the family physician to reduce a knuckle of intestine which had become partially strangulated, and each time she had severe abdominal pain attended by vomiting.

On January 20th, 1924, following such an attack the hernia became very sensitive, red and swollen. I saw her in consultation with her physician and advised an operation under local anesthesia, as she was a very large woman with a decided intermittent pulse and dyspnea on slightest exertion. The hernial mass was the size of two fists. As the patient had ceased vomiting and was having daily alvine evacuations, I was of the opinion that a piece of omentum had become strangulated and necrotic. It took no persuasion for her to consent and be moved to the hospital. She was tired of the hernia and was suffering considerable pain. The leucocyte count was 12,000, polymorphonuclears 80%. Blood pressure 150—85. She was five feet five inches in height and weight 190 pounds.

Under local anesthesia an incision was made and pus encountered which was sponged away. The finger being introduced into the abscess cavity a foreign body was felt. The incision was then enlarged, for my first thought was that an instrument had been left in the abdominal cavity twenty-one years ago. With a larger opening a bone could be seen protruding from the small intestine. The bone (between two and three inches long) was extracted without difficulty, wound sponged, cigarette drain and tube placed adjacent to perforation.

The cigarette drain was removed within twenty-four hours and cavity irrigated with Dakin's solution. Tube removed at end of fourth day, when suppuration had ceased. There was no leakage of fecal material and no disturbance of the gastro-intestinal tract. The intestine was entirely "walled off" from peritoneal cavity and apparently its incarceration was of long-standing. The patient was entirely relieved from pain, but I de-

cided to wait until it was thought advisable to repair her hernia. All inflammation and reaction had subsided by the twelfth day, there was no discharge, and the wound had healed.

Under local anesthesia, with a preliminary $\frac{1}{4}$ grain of morphine, the hernia was repaired. The transverse colon, omentum and small intestine were incarcerated in hernial sac, a thickened indurated area was seen in small intestine where bone perforated. Contents of sac reduced and hernia closed by Mayo method of overlapping fascia and fixing with double row of sutures.

The patient's progress was uninterrupted until the eighth day, when, after a good night, as recorded at 6:15 A. M., nurse was called to patient's room and she said, "call the doctor quick, I believe I am dying." I was called and ordered aromatic spirits of ammonia, atropine and icebag over heart, and if not relieved to give camphorated oil. Before I could dress was notified that she was dead.

DISCUSSION

D. Y. Keith: In the first case reported, had roentgen-ray examination been made, the diagnosis of a foreign body in the appendiceal region could have been made. Enteroliths can be seen as readily as bone or certain other foreign bodies. I believe Dr. Allen stated the patient had complained of symptoms for six months. Had the diagnosis been made early perforation of the intestine could have been prevented by prompt operation.

In the second case the presence of the bone would probably not have been recognized by roentgen-ray examination on account of the size of the patient. Even if it had been demonstrated through the large mass of soft tissue, I doubt if any roentgenologist would have suggested opening the abdomen based upon such meager findings.

A. R. Bizot: About nine years before coming under my observation a woman had orally disposed of a quantity of hardware. She began to suffer pain in the right lower abdominal quadrant and passed blood and pus from the rectum. I could not understand what could be the cause of her symptoms, but administered purgatives without any beneficial effect.

The patient was taken to Dr. D. Y. Keith's office where roentgen-ray examination demonstrated the presence of four six-penny and five ten-penny nails, and also three pins in the intestinal tract.

At operation it was found that four of the nails had become agglutinated in the position of a cross, so it may be readily understood why

they could not enter the cecum. Knowing the relative dangers of opening the large as compared to the small intestine, the nails were "milked" ten or twelve inches from the cecum, a small incision was then made in the intestine and the free nails easily extracted. The four nails which had become agglutinated could not be removed until the incision had been considerably enlarged. We looked for the pins but could not find them. I am glad to say one pin was passed shortly after the operation, and ten days later she passed the other two.

Dr. Keith afterward made another x-ray picture and the intestinal tract was free of foreign bodies. The patient is still living.

E. S. Allen (Closing): In the first case reported we thought the foreign body was a tack until after a roentgen-ray examination had been made of the specimen. The boy made a perfect recovery.

The second case serves to emphasize the fact that our responsibility does not cease until the patient has fully recovered and has been dismissed from the hospital. A foreign body which had perforated the intestine was first removed and the patient later successfully operated upon for a long-standing ventral hernia and was about ready to leave the hospital. Her abdomen was normal and there were no gastro-enteric disturbances. I had changed the dressings the previous day, there was no infection of the abdominal wound, in fact I regarded her as well and expected to dismiss her from the hospital the following day.

As no autopsy was permitted the exact cause of death can not be stated.

Prolonged Rest Cause of Puerperal Sepsis,—Corby mentions facts that tend to indicate that women who rise after labor, perhaps, in some instances, too soon, are less liable to infection than those who stay in bed for a considerable time. Judging from measures taken by Nature during and after labor to get rid of noxious bacteria that may have found entrance into the genital tract, we may assume that an important function of the lochia is to wash out debris that may have remained in the uterus after labor is ended. Another function of the lochia is to flood out any patho-entrance to the vagina or uterus. The dorsal decubitus causes the lochia to stagnate in pools in both the uterus and vagina, thus forming veritable forcing beds for the breeding of bacteria. Furthermore, the lochia retained in the uterus, acting as a foreign body, interferes with adequate involution, leaving the cavity larger with freer entrance for the bacteria.

FEMORAL FRACTURE: REPORT OF TWO CASES.*

By JOHN D. TRAWICK, Louisville.

Case 1. Early in November, 1923, a boy, aged nine years, while scuffling with other children, fell and fractured his left femur at the junction of the middle with the upper third. I was asked to see the patient by his physician, Dr. A. Nettleroth.

We found the child lying in the yard with the left foot and knee across the right leg. First aid dressing were applied and the patient brought to the hospital. Roentgenoscopy disclosed that the fracture was of the spiral or "twisted" type with some separation but fairly good alignment.

Under anesthesia more perfect apposition was secured by traction, thus bringing the foot in position of complete extension. On the Hawley table, with extension as extreme as possible, plaster of paris was applied, healing occurred with perfect result, and no shortening. The patient was able to walk at the end of ten weeks. The last roentgenogram, taken two days ago, showed almost perfect alignment.

This case is reported to show that by the method of extreme extension in femoral fracture perfect apposition and a good result sometimes can be secured.

Of course it is sometimes difficult to hold spiral fractures of the femur in place, especially in active muscular individuals.

We present this case as another argument in favor of patience and extension before resorting to radical operation, and also to suggest that it would be well to use the Hawley table more frequently in these cases.

Case 2. The next case represents one of the most difficult fractures of the femur that it has been my misfortune to treat. The patient was a woman who weighed over three hundred pounds seen December 11, 1923. Her thigh measured twenty-eight inches in circumference. The lower fragment was displaced backward and the upper fragment rested in the "Y" thus produced.

My first attempt at reduction was fairly successful, good alignment being secured, and by extension and use of the Hodgen's splint elevated by overhead frame, the ultimate result was most gratifying. Healing occurred with no shortening. There is, however, some stiffness of the knee joint.

The X-ray plate is rather surprising to us sometimes. The antero-posterior picture in this case shows good position, but the lateral

*Clinical report with roentgenograms, Jefferson County Medical Society.

view demonstrates some angulation although the functional result is perfect.

In this case the question arises whether or not to use the ice tongs, in order more effectively to make extension from the femoral condyles. With the thigh twenty-eight inches in circumference, I submit that it would have been quite a difficult proposition to grasp the bone with ice tongs. We felt that possibly here was another case in which open operation could be avoided, although our first impulse was to perform open operation. The patient was walking at the end of twelve weeks.

These two cases are presented to again argue for extension, use of the Hawley table, and the application of intelligent mechanical ideas in the treatment of femoral fracture.

DISCUSSION

Guy P. Grigsby, Louisville: The question as to the best method of treating femoral fractures has by no means been definitely settled. Good results may be obtained in some cases under any method of management, but in others with the same method the results are often disappointing.

All X-ray pictures should be interpreted by an expert in that line of work. They are at times very deceiving. In one of my cases I am quite sure the functional result would have been satisfactory had the fracture been left as I had it reduced. I was misled, partly through my own fault, and partly by the roentgenologist, and the case was subjected to open operation with rather disastrous result in that infection delayed recovery for several months.

I would much rather treat a woman with thigh circumference as great as stated by Dr. Trawick, than to attempt to treat a man weighing one hundred and eighty pounds, with a thigh twenty-two inches in circumference because the latter is all muscle.

I do not believe there is any better method of treating femoral fracture than the application of a long bone plate with four screws in each end. This plate can be applied with thorough technique, not touching the tissues even with the gloved hand, making it an instrumental proposition throughout, with a high percentage of cures. It must be borne in mind, however, that more perfect aseptic surgical technique is required for successful open bone work than for abdominal section. The peritoneum with its

sera will to a certain extent take care of intra-abdominal infection, whereas the osseous tissues are readily attacked by even slight infections. If the bone plate is properly applied there should be no infection nor even softening around the screws. If the screws are too tight necrosis of the bone may occur.

C. Guy Forsee, Louisville: In the treatment of fracture of the femur of the type Dr. Trawick has presented, I have found that by flexing the leg on the thigh as desired to get correct alignment and applying a heavy plaster of paris dressing that extension may then be successfully made from the outside. I think in the majority of instances good results can be obtained by extension and counter-extension and in that way we can avoid subjecting the patient to the additional dangers of open operation.

J. P. Boulware, Louisville: I desire to practically agree with everything Dr. Trawick has said in presenting his interesting cases. As a rule an open operation is not performed for femoral fracture for forty-eight hours after the injury during which time an attempt can be made at reduction, and another roentgenogram may then be made to ascertain whether the fragments are in correct apposition and whether open operation is necessary. These cases are sometimes very puzzling.

I recently had under observation a girl of eight years who had bilateral oblique femoral fracture and a transverse fracture of the right tibia. Roentgenoscopy showed the tibial fragments in perfect apposition. It was a question as to how to apply extension here and not disturb the fracture of the tibia, also with both legs fractured above the knee we had no good one as a pattern.

This child was treated on a Hawley table by applying extension to one knee and one foot and without disturbing the tibial fracture. I am glad to say good apposition was secured and maintained; the bones healed promptly without shortening and the child walks now without any deformity.

John D. Trawick, Louisville, (Closing): I duly appreciate the discussion which has added much to the case presentation. I would like to call particular attention to the after-treatment of patients with femoral fracture, especially where the knee joint has been more or less involved. We have found that, just as early as possible, heat therapy and passive motion of the knee joint hastened restoration of function. It is well to remember that spasticity develops rather quickly in these cases, and the sooner heat and passive motion can be applied the better for the patient.

THE INSULIN TREATMENT OF DIABETES MELLITUS.*

By R. HAYES DAVIS, Louisville.

Before taking up the discussion of the treatment of diabetes with insulin and the report of some forty-two cases which I shall present, it would be well to discuss very briefly what is meant by insulin. This is an extract made from the islands of Langerhans. Insulin was first separated by Drs. Banting and Best, working in the physiological laboratory of Dr. Macleod, of Toronto, Canada. The various phases of the experimental work necessary to perfect this extract is very interesting, but time will not permit further detail in this paper.

After a satisfactory product was produced, the process was given to the firm of Eli Lilly & Co., for the purpose of securing wide spread distribution, and they have succeeded in producing from pancreatic glands of slaughtered hogs an extract which is highly potent, carefully standardized, and staple, and in sufficient quantity to supply all demands.

Insulin is first standardized by the effect which it has in reducing the blood sugar in rabbits and later by the effect which it has on patients who have been previously controlled by other extracts. By a unit is meant the quantity necessary to reduce the blood sugar in a rabbit, from which food has been withheld for sixteen to twenty-four hours, to 0.045 per cent within four hours after subcutaneous injection. The end point of 0.045 per cent is chosen, as a lowering to this degree will produce a characteristic convulsion in the animal. The product of Lilly & Co., is called *iletin* to distinguish it from the Canadian insulin.

When insulin is injected into the human body it has a decided effect on the blood sugar. Usually within a half hour there is a distinct and definite lowering which continues for three or four hours, and is then followed by an increase. The actual time of onset and the duration of the lowered sugar is somewhat variable and depends upon the individual characteristics of the patient, the dosage of insulin given, and the quantity and quality of food taken. The average time for measuring the maximum effect is ninety minutes to three hours after the extract is administered.

Theoretically insulin will metabolize two to three grains of carbohydrate, but there is in certain cases a considerable variation, and the effect must be carefully studied on each patient. Even animals react differently, and

it has been found that rabbits require a dose not in proportion to their weight, but as the square of their weight as compared to the usual rabbit of two kg. In other words, a rabbit weighing four kg. will require four times more insulin than a rabbit weighing 2 kg., and a rabbit weighing six kg. will require nine times as much.

This may be a factor of considerable importance in the human subject, as I have one patient, a man weighing over two-hundred pounds, who has required extremely large and increasing doses over a period of a week and is still not sugar free.

The exact reaction which leads to the lowering of the blood sugar has not been determined however, and certain conditions that are not clear now may be explained in the future. McCormack, Macleod, Noble and O'Brien have elaborated the theory that sugar must disappear from the blood because it passes into the tissues, and insulin no doubt also passes out of the blood into the tissues, and when it enters the tissue cells it sets up in them some process which leads to the immediate disappearance of sugar as such, so that a "vacuum" for sugar is created in the cell, and sugar is withdrawn from the blood more rapidly than it can be replenished. This is a plausible theory. Is it not possible too that Insulin may require the aid of some other element for its action just as an antibody requires the aid of the complement? This might explain why insulin has a different action in certain different cases.

If a proper quantity of insulin is administered, there will be a fall in the blood sugar to a normal level. If the dose is too large, the decrease may be sufficiently great to produce definite symptoms whose severity is dependent upon the degree of reduction. If the sugar falls to a level of 0.07 per cent the patient becomes promptly aware that something is wrong. He becomes anxious and nervous and feels tired and weak, and at times he may lose his emotional control and weep. He is tremulous and may lose to a certain extent his co-ordination of movements. There may be pallor or sweating, and a profuse sweat is usual. If the temperature is taken, it is usually subnormal. If the sugar continues to fall and reaches a level of 0.05 per cent there is an acute distress or mental disturbance. The patient is confused, and there is disorientation, and at times there is difficulty in articulating. There is also a variation in the reaction as compared to the blood sugar under certain condition. One of my patients, a very severe diabetic (Case No. 23) developed the latter symptoms, and a blood sugar made at the time was only 0.10 per cent. If the sugar falls to 0.032 per cent

*Read before the Jefferson County Medical Society.

there is coma, and death soon follows, unless prompt relief is given. Fortunately if these symptoms are recognized they can be promptly alleviated by the administration of carbohydrates, preferably in the form of orange juice or sugar. Fifty to one-hundred c. c. of orange juice, or better five to twenty-five grams of glucose with orange juice, should be used, the quantity depending on the symptoms. It is advisable, if the patient is walking about, to have him carry in his pocket several loaves of sugar to be used if an emergency should arise. If coma exists a hypodermic injection of 1 c. c. of 1 to 1,000 epinephrin should be administered, and if the patient can not swallow, then glucose should be given at once intravenously or even subcutaneously. If patients are getting large doses at night, they should be carefully watched, as the reaction might occur during sleep.

I shall now proceed to a report of cases after which I shall take up a discussion of their treatment. These cases are taken from my diabetic records since I began the use ofletin in November, 1922, and comprise all the cases I have treated. Some of them did not need Insulin but are cited for comparison, but in many of them it was a great necessity. The reports in this paper can be given only briefly, but with the consent of this society, I trust to report at a little later date with lantern slides, a series of charts showing the complete management of these cases and other cases that I now have under observation.

Case No. 1. Age, 64. Female. Original weight—170 pounds. Diabetes many years. Fast-ing method treatment with gradual increase. Present diet; carb.—70, protein—76, fat—140, calories—1,844. Present sustained weight—145. Blood sugar after food 0.187 per cent. This patient can exist quite satisfactorily on present treatment, but the strength and endurance can be greatly increased by the addition of more food with the aid of insulin.

Case No. II. Age, 52. Female. Weight, 177½ pounds. Diabetes of only few months' duration. Blood sugar 0.230 per cent. Present diet; carb.—165, prot.—87, fat—154, calories—2,394. Present weight stationary at 161 pounds. Present blood sugar 0.182. Insulin not necessary.

Case No. III. Age, 38. Male. Weight 170½ pounds. Gradual starvation and increase in diet treatment. Present diet; carb.—155, prot.—80, fat—99, calories—1,831. Weight stationary at 160½ pounds. Insulin not necessary. Blood sugar 0.135 per cent after food. Diet could unquestionably be increased.

Case No. IV. Age, 55. Female. Weight—151½ pounds. Original blood sugar 0.428 per cent. Gradual starvation and increase in diet treatment. Present diet; carb.—63, prot.—66, fat—130, calories—1,676. Blood sugar 0.167 per cent. If this case were in the city, I should give insulin to get higher tolerance.

Case No. V. Referred by Dr. Murphy, of Salem, Indiana. Age, 50. Weight—192. Diabetes of long standing with repeated pulmonary hemorrhages, severe cough, and elevation of temperature. Blood sugar 0.554. Treatment began before insulin, and case cited to show excellent results obtainable before the advent of insulin in certain cases. This patient required prolonged starvation treatment. Diet on discharge: Carb.—40, prot.—60, fat 120, calories—1,480. Patient has gradually increased diet according to instructions and has never shown sugar since leaving hospital. Is now doing hard manual labor with no signs of activity in the lungs, and last blood sugar after food was 0.163. He maintains weight of 165 pounds. Insulin would have greatly hastened this patient's recovery.

Case No. VI. Age, 62. Diabetes long standing; gangrene portion great toe and small infected area on heel. Usual low diet treatment. Steadily gained in tolerance to good maintenance diet of carb.—63, prot.—70, fat—136, calories—1,756. Foot entirely healed. Patient broke over a few weeks and necrotic area promptly returned in toe. He is a Greek and can not speak English and is now under the care of a Greek physician. There is no need for insulin in this case.

Case No. VII. Referred by Dr. T. N. Willis, of Louisville. Age, 36. Male. Colored. Weight—220 pounds. Decided vesicular eruption over both legs with slight edema feet. Present diet; carb.—159, prot.—84, fat—130, calories—2,142, and is still increasing. Insulin is entirely unnecessary in this case.

Case No. VIII. Age, 35. Present diet; carb.—160, prot.—84, fat.—127, calories—2,095. Sugar free. Insulin not necessary.

Case No. IX. Age, 47. Blood sugar—0.176 per cent. Was simply given diet of carb.—159, prot.—79, fat—115, and after a few days sugar disappeared. Insulin wholly useless.

Case No. X. Old case. Necrotic area in toe. Has not been sugar free for several years in spite of diets. Usual gradual starvation and increase treatment. Present diet; carb.—40, prot.—80 and fat 140. Sugar free for weeks. Insulin could be used to give more palatable diet, but is not necessary. This patient will not take it, as she is so well and is perfectly satisfied.

Case No. XI. Referred by Dr. Murphy, of Salem, Ind. Age, 58. Weight—176 pounds. Eczema. Blood sugar—0.230. Non-protein nitrogen 31.5 mgs. per 100 c. c. Urea nitrogen—14.2 mgs. per 100 c. c. Uric acid—1.3 mgs. per 100 c. c. Usual dietetic measures, and patient has remained in good condition on diet of carb.—127, prot.—92 and fat—150. Insulin not necessary.

Case No. XII. Age, 64. Weight—185 pounds. Intermittent glycosuria. Two hours after taking 100 gm. glucose, blood sugar 0.272 per cent. Case easily controlled by diet of carb.—159, prot.—84 and fat—120, calories—2,048. This case could no doubt be controlled by low carbohydrate diet with unlimited protein and fat, but this diet is more palatable and is safer.

Case No. XIII. Referred by Dr. Yandell Roberts, of Louisville. Age, 31. Weight—148 pounds. Diabetes of few months' duration. Blood sugar 0.50 per cent. By usual method diabetes controlled, and present diet of carb.—140, prot.—75 and fat—136 keeps patient sugar free with weight of 136 pounds. Last blood sugar 0.05 per cent after food. Insulin entirely unnecessary at present time.

Case No. 14. Referred by Dr. G. S. Hanes, of Louisville. Age, 45. Male. Weight—179 pounds. Increased to carb. of 200 gms., and easily controlled. Insulin wholly unnecessary.

Case No. XV. Female. Weight—196. Marked dermatitis about vulva. Blood sugar—0.375 per cent. Had sugar after four days' starvation. Was put on low diet of carb.—22, prot.—13 and fat—18, calories—302. Was given insulin five units before each meal and increased to ten units on second day, and developed good tolerance, but was obliged to leave hospital on account of illness of husband and has not returned.

Case No. XVI. Age, 22.—Weight—103½ pounds. Very emaciated and extremely weak. Aetone bodies—two plus. Blood sugar 0.555 per cent. Hemoglobin—50 per cent. Red cells—3,170,000. With low diet and insulin ten units three times a day, diet has been increased to carb.—56, prot.—64 and fat—134, calories—1,686. Patient gained 12 pounds in two weeks and strength has greatly increased. Present blood sugar—0.197 per cent after food.*

There are a series of other cases at various stages in the course of treatment, but they do not show anything particularly characteristic, and I shall not take time to report them in the present paper.

In most of my cases I have endeavored to build up as high a tolerance as possible without insulin as was formerly customary in the treatment of diabetic cases. I have used either gradual diminution in diet, eliminating the fats early and reducing the carbohydrates and proteins at the same time until the patient became sugar free or until starvation became necessary. If not sugar free after three or four days of starvation, then a low diet was given, and insulin gradually increased until the sugar disappeared from the urine. The diet was now gradually increased, carefully balancing the diet and the insulin with the aid of the blood sugar, until a proper maintenance diet was secured, endeavoring to get the carbohydrates as high as possible and to keep the fats reasonably low with a protein of about one gm. for each kg. body weight, and endeavoring to keep the insulin within moderate limits. After the proper diet has been established, then the insulin has been gradually reduced. The exact management of these cases depends largely on the type of case, the ordinary tolerance, the persistence of the hyperglycemia, and varies considerably with the individual patient. The advantage of this method is its safety as reactions seldom occur with small dosage and if so, they are very light; and the establishment of an accurate tolerance which is a considerable aid in future management. The only disadvantage is that in some cases it may require a little longer time perhaps with a greater loss of weight and strength and hence a more prolonged convalescence.

Just recently I have adopted a method in the management of several cases which is greatly favored by some, but with which I am not very well pleased. It is supposed to be more rapid and it does not cause as great a loss in weight and strength and the hardship of a low diet. With this method a diet is given at once of a minimum number of calories for a patient at rest. A minimum protein allowance of about 0.66 gm. per kg. body weight is used as a basis, and the diet so constructed that the carbohydrates and fats are balanced, so that the fats are equal to or only slightly greater than all the available carbohydrates. With this diet the patient maintains his own while at rest. The total glucose excretion is determined daily and when a standard output has been established, enough insulin is given to metabolize this waste. Theoretically, one unit would metabolize one or two grams of carbohydrate, and if this were always the case this method would be ideal, but unfortunately it is often quite difficult to get the patient sugar free on a large diet, and enormous doses are required. It is not safe to give these extreme doses in

*Remainder of case reports will be printed in the reprint.

the beginning and considerable time is lost in increasing the amount to the point where the sugar disappears. Then with large doses the patient should be most carefully watched as he may become sugar free at any time, and the next dose may result in the lowering of the blood sugar to a dangerous level. I believe where such doses are given the patient should be very closely watched and the urine tested for sugar three hours after each injection. As soon as it becomes sugar free, the next dose should be lessened. The diet can now be steadily increased to a maintenance and the insulin lowered as rapidly as possible. After the patient once becomes sugar free, this condition can after a short time almost always be maintained by reasonably small doses of insulin, but in the beginning very large doses are often required to bring this about.

Insulin should be given one-half hour before a meal to produce its maximum activity on the blood sugar resulting from the food consumed. In the beginning three doses a day are usually necessary, but later two doses night and morning will usually be found to be sufficient. After the two doses have proved to be enough, I then gradually decrease the evening dose, and after a condition is established in which one dose carries the patient satisfactorily, I begin a reduction of the morning quantity.

In diabetic coma the management is different, as these cases are always desperate and unless radical means are used, death is almost certain to follow. All the ordinary methods of managing severe acidosis should be used. The patient should be kept quiet, the stomach and bowels emptied if possible with gastric lavage and an enema, large quantities of fluid should be administered by mouth if possible and if not by proctoclysis. It is a disputed point whether soda should be used or not. It probably does no harm and favors the elimination of acetone bodies so its use is permissible at least. Now the most important measure is to administer 50 gms. glucose intravenously in 500 c. c. normal saline. At the same time 50 units ofletin should be injected into the vein. In two hours this should be repeated and again until improvement takes place and then less often and in smaller quantity. During this treatment great care must be used to keep the glucose in excess of the letin and the urine should be examined after each injection, even if catheterization is necessary; unless sugar is being excreted there is great danger of throwing a diabetic coma case into an insulin coma. After the coma disappears the case can then be managed as any other diabetic.

In the preparation of patients for surgical operations they should have at least 50 gms. of carbohydrates a day and preferably considerably more and a comparatively low fat. Then the patient should be carefully watched after operation and glucose given quickly with the proper doses of insulin if there should be any evidence of acidosis.

Insulin is of even greater value in young than in old patients and it may be regarded as a specific in diabetic coma. It is of extreme value in patients requiring surgery and in diabetes complicated by septic conditions, although it must be recognized that in all septic cases the control of the diabetes will often not control the sepsis after it is once established. These cases should always be treated early and not left until the state of their vitality is so low that nothing can save them. This is especially true in gangrene. If this is seen early the prognosis with insulin is favorable, but when the case has progressed too far, the results are very uncertain.

I have endeavored to express as clearly as possible my views on the management of diabetic cases, but I believe no absolute rules can be given, as every case will always be a law unto itself. Its proper management will depend upon the experience, skill and good judgment of the physician, and there is no condition where improper management may do greater harm and lead more quickly to disastrous results than in the use of this powerful remedy. This is especially true in coma, as a case may change so quickly from a diabetic coma to an insulin coma and die on the very verge of recovery.

CONCLUSIONS:

1. Insulin is a very potent remedy in diabetes. It will almost without exception lower the blood sugar.

2. It can easily lower the blood sugar to the point of coma and even death if not properly managed.

3. No absolute rules can be formulated, as its action depends upon the severity of the case, and upon individual characteristics, and it must be used with great caution and its action carefully controlled.

4. In diabetic coma when large doses are given glucose must be used in sufficient quantity to keep the patient constantly excreting sugar. If he stops excreting sugar, he may very rapidly pass into letin coma and die.

5. It can not be emphasized too strongly that letin should never be used by any one who does not have available all necessary laboratory facilities and who does not understand thoroughly scientific dietetics and the modern management of diabetes. To give

iletin without absolute control of the diet will not only not accomplish any good, but it invites the most disastrous consequences.

6. Iletin can not be expected to relieve every case, but with proper usage, it will unquestionably save the lives and restore to usefulness the vast majority of victims who would unquestionably progress to a fatal outcome without it.

JUVENILE NASOPHARYNGEAL FIBROMA TREATED WITH RADIUM, WITH REPORT OF CASE.*

By D. Y. KEITH AND J. PAUL KEITH,
Louisville.

Patient—E. S., aged 16. Referred to us by Irvin Abell, J. L. Heffernan of Jellico, Tenn., and E. S. Moss, of Williamsburg.

A little more than twelve months ago patient first consulted Dr. Heffernan at which time there was a moderate amount of swelling in the region of the left parotid with edema of the skin and the surrounding tissues. The patient was unable to open his mouth enough for an examination. As there was an epidemic of mumps at this time in his community Dr. Heffernan asked him to return in ten or twelve days for further examination.

Patient did not return for two months at which time the mouth could be opened a little wider than at the former visit and with the finger inserted in the left side of the mouth a tumor could be felt in the left tonsillar fossa. The swelling at the site of the parotid and edema of the skin was the same as when seen two months previously.

Patient was referred to a throat specialist for observation and operation if he thought indicated. The patient did not report for the operative work for three months. The boy was operated on August 17, 1923, at which time both tonsils and adenoids were removed and as much of the tumor tissue in the left tonsillar fossa as was possible. One week after the operation the boy had a very profuse hemorrhage from the left tonsillar area lasting several hours. A week later he returned home. His improvement was very little, never getting back to his normal weight and feeling before the appearance of the growth.

A section of the tissue that was removed was submitted to the pathologist for microscopical examination. The report was "A number of groups of large vesiculated cells suggesting sarcoma."

Another hemorrhage occurred from the left tonsillar area two months after the operation which was mild in character. He was seen by Dr. Heffernan and again sent to the throat specialist for advice. No further operative procedure was deemed advisable and he was to return home and to expect improvement.

Since this time the tumor has evidently continued to increase in size with loss of weight and marked anemia. He has been confined to his bed for five months and has become very weak. He is unable to raise his head except by assistance with his hands similar to the way a patient with a cervical Potts lifts his head.

Occasionally he has severe headaches and at present is taking four to six one fourth grain morphine tablets a day for relief of pain.

Blood count: Haemoglobin 73 per cent, red cells 3,820,000, white cells 40,600, small lymphocytes 10, large lymphocytes 1, neutrophils 89.

Examination shows well developed, anemic boy about six feet in height. It was with difficulty the jaws could be opened enough to see the posterior part of the throat. He could not open his mouth enough to insert a finger to palpate the growth. A diagnosis was made of juvenile nasopharyngeal fibroma which we believe is the correct diagnosis and radiation was advised. The location, size of the growth as well as the physical condition of the patient prevented any attempt at surgery.

With the assistance of Dr. Claude T. Wolfe the mucous membrane of the nasopharynx, throat and posterior nares was swabbed with ten per cent cocaine as a local anesthetic. After a great deal of persuasion the jaws could be opened far enough to see a tumor presenting below the left pillar. The anterior left pillar was grasped with a small tenaculum forcep and pulled upward and outward. The tumor mass could be easily seen filling the left side of the throat.

Four radium needles, each containing twelve and one half milligrams of radium, were inserted into the superior portion of the tumor and estimated to be placed about one centimeter's distance apart. The resistance from the needle was only of moderate firmness, being inserted very easily and with very little pain to the patient. No bleeding was encountered. These needles were allowed to remain for twelve hours' time.

While the throat was cocaineized a catheter was threaded through the left nares and a string tied so that we would be able to

*Clinical report with exhibition of patient before the Jefferson County Medical Society.

insert a radium capsule in the posterior nares the following day by attaching to the string and pulling through the mouth into the posterior nares similar to the way a nasal plug for haemorrhage is pulled into the posterior nares. There was so much pressure of the tumor on the right side that the right posterior nares was completely occluded. Evidently the induration of the growth kept the left posterior nares from collapsing as easy as the right.

Two days later without anesthesia a catheter was threaded through the left nostril and pulled out through the mouth and a radium capsule containing fifty milligrams of radium using silver and paraffin for screen, was pulled up through the mouth into the posterior nares. This was allowed to remain for eight hours.

Five days later we began the application of deep X-ray using two hundred kilo volts, four milliamperes, one millimeter copper and one millimeter of aluminum and leather as filters at a skin anode distance of twenty-two inches. He received the hour's application directly into the nasal fossa and antra anteriorly, the eyes being protected with heavy lead. He received one hour's application with the same technic to the left parotid area; one hour's application to the parotid area; one hour's application to the posterior cervical area. The above applications were given thirty minutes each day over a period of eight days, the entire radium and X-ray treatment requiring eighteen days.

Six days after the patient received the application of radium directly into the tumor there was marked improvement and the beginning of a ravenous appetite. At this period his weight was eighty-five pounds and during the next ten days while in the hospital he gained thirteen pounds in weight.

Today, two months after treatment, he returned for observation having gained forty-one pounds in weight. An examination of the nose and throat by Dr. Wolfe was made. He reports that he is unable to see any evidence of any remains of the tumor. The boy can breathe easily through both nostrils and appears to be free from any obstruction in the nose, throat or Eustachian tubes.

Ewing in his book on neoplastic diseases gives a brief description of this type of growth, saying that it invariably occurs between the ages of ten and twenty-five years and may occur and extend in several definite directions, depending entirely upon its exact origin.

"According to Bensch it produces an intrapharyngeal tumor when arising from the basilar fibrocartilages, the upper cervical verte-

brae, or the internal lamina of the pterygoid process; or an extrapharyngeal growth when arising from the cartilage of the foramen lac. ant., or the sphenopalatine fossa. The intrapharyngeal tumor extends forward into the nares and the adjacent sinuses, causing atrophy of the bony structures. From the sphenoidal origin the growth extends down between the masseter muscle and the mucosa; or it pushes between the pterygoid and styloid muscles into the temporal fossa and forward into the malar region; or through the inferior orbital fissure it extends into the orbit, or by way of the superior orbital tissue or lamina cribrosa it reaches the cranial cavity. From these points the courses from the two seats of origin overlap."

The course is of an actively growing tumor which disturbs various functions by pressure and leads to anemia which may be followed by hemorrhage and local infection if ulceration has occurred, which may prove fatal or may prove fatal by cerebral disturbance. Metastases are not observed. Many of these cases have shown complete spontaneous regression after partial removal. This occurs when the tumor is seen in a patient in the latter period, that is, near the twenty-fifth year. This may illustrate a form of natural immunity. The tumor predominates in males. These tumors are not always of fibrous structure though may be fibro-cartilaginous which may explain why they do not occur after complete development of the cranial bones which occurs around the twenty-fifth year.

This type of tumor is quite rare and has been observed but a few times by many of the throat men who have enjoyed a very lucrative practice over a great number of years.

Two years ago we saw a patient, aged fifteen, with a tumor in the posterior nares, referred to us by Dr. S. G. Dabney, who had a microscopical diagnosis of fibromyxoma. The patient had had several profuse hemorrhages and had a great deal of mucus and blood always flowing from the nose. He was cured by the application of radium directly into the tumor and his improvement was very rapid. He remains well to date. Dr. Dabney insists that these patients if kept alive under proper nourishment until they are twenty years of age, he believes will all get well as they will establish a natural immunity from the normal development of the cranial bones.

REFERENCE

Neoplastic Diseases, Ewing, Page 164.

DISCUSSION

Claude T. Wolfe, Louisville: I saw this patient the day after admission to hospital. He was then certainly in a deplorable condition, emaciated, anemic, bedridden, and it required 1-4 grain of morphine every three or four hours to relieve his suffering. He was unable to breath through his nose and his mouth could be opened with difficulty.

Rhinoscopic examination, after application of ten-per-cent cocaine solution, disclosed a hard, fixed, broad-based tumor circular in shape and about one and a half inches in diameter occupying the nasopharyngeal space. The tumor was not pedunculated as it could not be moved in any direction. I presumed it sprang from the sphenoid or the posterior ethmoids. The parts were so sensitive and the patient so irritable that nothing could be introduced through the nostril until cocaine had been applied. After retracting the soft palate the mass could be readily seen hanging from high up in the nasopharynx.

Some difficulty was encountered in applying radium due to inability to keep the mouth well open, but after thorough cocainization we were able to introduce a small catheter through the nose and in that way the radium needles were properly introduced into the tumor.

The result in this case following radium treatment is to me absolutely phenomenal, I have never seen anything comparable to it. I examined the patient carefully today, his nose and nasopharynx are perfectly clear, there is no evidence of the former tumor, he is able to breath normally through his nose, his physical condition has markedly improved, and he has gained considerably in weight.

Irvin Abell, Louisville: Inasmuch as Dr. Heffernan originally referred this patient to me for advice, I merely wish to express my appreciation of the wonderful result Dr. Keith has obtained by radium treatment. When this boy entered the hospital his condition seemed to me from the standpoint of surgical procedure absolutely hopeless, he was emaciated, anemic, and was unable to move in bed without assistance. Moreover, the growth was so extensive, and its location so inaccessible, that even had his physical condition warranted operation, it is doubtful whether surgical removal could have been accomplished.

I recall having seen a similar case with Dr. S. G. Dabney about two years ago in a boy of fifteen. There was a tumor involving the nasopharynx presenting similar characteristics. A section of the growth had been excised for diagnostic purposes and serious hemorrhage occurred. The patient was deemed an unfit subject for surgical procedure and was referred to Dr.

Keith who secured a cure by radium treatment and the boy has since remained well.

Having that case in mind this patient was also referred to Dr. Keith, who, with the assistance of Dr. Wolfe, instituted the treatment he has outlined. Today is the first time I have had an opportunity of seeing the patient since.

The result is a splendid illustration of what may be done by radium in certain cases otherwise utterly hopeless.

S. A. Steinberg, Louisville: I agree with Dr. Keith that radiation in tubercular adenitis is permanently curative and is the treatment of choice in the majority of cases. When the lesions fail to subside under radiation it is usually due to secondary infection with softening of the glands. Where pyogenic infection ensues with formation of a large amount of pus within the glands it is often necessary to aspirate the fluid contents.

I have seen tubercular cervical glands bulging well outward beyond the angle of the jaw, disappear under radiation without surgical intervention. I have seen many of them operated upon with fistulae resulting owing to inability of the operator to remove the smaller tubercular nodes. In such cases the lesions have subsided and the fistulae disappeared under roentgenotherapy with filtered rays.

Pyogenic lymphadenitis due to boils and carbuncles as a rule does not yield to radiation. In tubercular adenitis, however, the figures given by Dr. Keith are correct, viz., in ninety per cent of cases the adenitis entirely subsides under radiation alone.

O. O. Miller, Louisville: Heretofore we have depended entirely on the tuberculin treatment of tuberculous adenitis. There is no question that the glandular enlargement will disappear under this method, but a complete course of tuberculin therapy requires three months. Thus we can readily see the advantage of radiation in these cases, a series of four or five treatments being sufficient to effect a cure.

I have wondered whether any immunity is conferred upon the individual by radiation treatment. It seems possible that by destroying the glands by radiation tuberculous toxins may be liberated and a relative immunity thus established. Certainly we know that tuberculin therapy enhances immunity. Unfortunately, however, we have no assurance that the glandular lesions will not recur, in fact recurrence has been noted in a number of our cases within a year or two.

Dr. D. Y. Keith has been kind enough to instruct us in the technique of radiation in these cases. Thus far we have treated only two patients by this method. One was given four treatments followed by appreciable improvement.

Tuberculin had been used for two months without definite beneficial effect. In the future we hope to try a combination of tuberculin and roentgenotherapy. If this is successful it will be quite a step forward in the treatment of these cases.

I would like to ask Dr. Keith whether he has seen any tuberculous glands extending from the root of the lung upward under the clavicle, and what his results have been in such cases under radiations.

Alex Nettleroth, Louisville: I wish Dr. Keith would tell us in closing the discussion whether radiation is supposed to suppress the virulence of the tubercle bacilli, or does it merely enhance the inherent protective factors of the patient?

J. P. Keith, Louisville, (Closing): In answer to Dr. Nettleroth's question: It is probable that improvement occurs from antitoxin absorbed into the system. The roentgen-ray acts principally upon the lymphatic tissue in the glands, causing absorption, sometimes calcification, and fibrous tissue formation. In that way a relative immunity is probably established. I have seen many patients gain in weight while under radiation treatment.

As to Dr. Miller's question: I do not recall any cases in which tubercular glands extended from the root of the lung upward under the clavicle. The majority of our patients have had cervical lesions. We have seen two or three with enlarged axillary glands, but I recall none with glands extending from the root of the lung upward under the clavicle.

Chloroform Coagulation of Hydrocele Fluid for Diagnosis.—Lisbonne describes a reaction which occurs in mixing the hydrocele fluid with chloroform. The results vary with the etiology. Research was made on forty-five fluids, and in forty instances the results of the reaction were compared with the operative findings, which harmonized in thirty-seven cases. The hydrocele always proved to be of an essential or primary nature when the fluid did not coagulate after prolonged contact with chloroform. The coagulation was rapid in from five to thirty minutes, when the hydrocele was of syphilitic tuberculosis or cancerous nature. The coagulation was slow, four to six hours, if a pachyvaginitis was responsible for the accumulation of fluid.

SHOCK*

By H. C. CLARK, Falmouth

This condition should not be confounded with syncope, which is a condition due entirely to anemia of the brain. It may occur from mental disturbance, disappointment or actual loss of blood, also from too rapid removal of fluid from the abdomen, a condition which supervenes in serious injuries of the head and spine, this condition is often confused with shock. The two may co-exist, and it is often difficult to differentiate them. This subject is too well understood from personal contact of every one present to go any further in definition as to what shock really is.

Referring to past personal experience in dealing with shock and its varieties, I am persuaded to go back over the road reviewing the subject, hoping only to refresh your mind as well as my own, on this almost forgotten condition hoping to revive interest and bring forth discussion. I shall not attempt to call attention to all phases of shock or particularize as to causes, only to say that there are different views entertained on this point, however, I shall give two causes, leaving you to add more or decide which of the two is responsible for this condition.

One authority asserts that it is caused by a paralysis of the vasomotor, causing dilatation of the abdominal vessels, thus impoverishing the brain and trunk. This would seem to convey the impression that the conditions following hemorrhage and shock were the same. The other prominent view is that shock is due to severe irritation of the peripheral sensory and sympathetic nerves producing a state of exhaustion of the medulla and pneumogastric nerves, or a general functional paralysis of the nerve centers which depresses the cardiac action.

We shall only proceed to speak of conditions as we can recall them leaving you to settle in discussion. Every traumatism may be followed by more or less shock, as a rule the degree of shock is proportionate to the injury received, yet there are severe conditions of shock following a very slight injury. We recall an accidental fall to the ground of a boy fifteen years of age who died from shock in two hours. There were no visible signs of injury to the body. We also recall an amputation made near the shoulder joint of a man near seventy, who had walked a mile after having his arm ground off in a hay press. This man was bright and perfectly rational, chewing tobacco within an hour after the operation. Time, age or physical

*Read before the Pendleton County Medical Society.

condition is not always a safe guide as to time of recovery or death.

There is a vast space of uncertainty of what the results are going to be. I recall another case which clearly demonstrates that we should be very careful in making statements as to how long shocks are going to last. A man standing on the side of a railroad while a fast moving train was passing was hit on the left cheek with a small piece of ballast taken up by the moving train. It scarcely marked his face, it staggered him slightly and he slipped and fell breaking his arm midway between the elbow and shoulder. The fall gave him concussion or shock from which he never recovered for two weeks, very pale, emaciated, feeble pulse, was very irrational for ten weeks. He came back to mentality in a few hours. There is another kind of shock, I refer to secondary shock coming on some time after accident or operation performed. A woman was kicked or pushed down by a cow, suffered luxation of the shoulder joint, which reduced the same day. She did well until the fourth day then began showing every symptom of shock, dying on the fifth day. We believe death occurs instantly from shock stilling the heart from fright, paralysis taking place through the vaso-motor or the pneumogastric. We are further persuaded that the field of vision into these conditions has not been materially improved and is as uncertain and clouded as it was many years ago, and we are still admonished in giving our opinions. The rule does not always hold good that the severity of the shock is proportionate to the amount of injury received. You can plainly see that the rule does not hold hard and fast, is bent back and forward from the straight line it is uncertain and problematic a positive opinion may cause much embarrassment to the physician.

It might be of interest if I again relate my individual experience with secondary shock following gall bladder operation I rallied from the operation and seemed to gain strength fairly well for a few days when I must have suffered secondary shock a reversal of the controlling element of metabolism took place and an increased amount of serum was produced, the blood becoming so thin that the drainage tubes in my side was filled with a continuous flow of serum for many hours. I am tempted right now to introduce the mysterious influence of the ductless glands which I am sure figure in the cause shock, but I only mention the connection which I believe exists between shock and the blood stream and the vaso-motor

system, however I shall leave this question out and stick to my text.

Prophylaxis: What can be done to prevent shock. We hope to reach if possible the controlling forces of the heart and respiration by applying a splint to the regulator. The pneumogastric nerve, the governor and self starter. If it is a case of surgical operation (not an accident) we generally have sufficient time to prepare the patient beforehand, by having the bowels and stomach empty and give necessary heart and vaso-motor support by hypodermic of morphine and strychnine. Where we have had to treat accidents occurring when the patient was under the influence of whiskey, stomach full of food, bowels loaded, exposed to the cold, loss of sleep and no fight left in him, this is when shock has done its worst. Loss of blood alone has seldom contributed to shock in my experience, as hemorrhage has seldom been a complication in railroad accidents where most of my patients in this class have been, doubtless you can recall cases where extreme prostration from loss of blood was a forerunner for shock, pupils dilated, pulse rapid and thread-like; pale; sighing, respiration shallow, eyelids drooping.

There are gentlemen present who have witnessed such conditions with myself who doubtless recall the incidents it would be a loss of time to undertake to split hairs over, which predominated in importance. Prostration from loss of blood, or shock from prostration? To win the fight was enough to occupy our time and attention leaving the debate until the present time. Doubtless death takes place from heart paralysis during etherization. We recall a case being operated for uterine fibroid, a married woman twenty eight years of age married eight months having called a physician for hemorrhage from the uterus. Not having menstruated for six months on inspection she appeared to be pregnant the history failed to verify this upon attempting to examine her. The vagina was found blocked by imperforate hymen. We were forced to agree with her that she was not pregnant but had fibroid. She was perfectly normal in all respects except as above stated thoroughly prepared for operation which was almost completed when they died from heart paralysis or paralysis of the pneumogastric, shocked from the effect of ether. So I now leave the subject with you and hope you shall be able to find room for discussion.

INFLUENZA.*

By J. T. REDDICK, Paducah.

Influenza occurs endemically, epidemically and sometimes pandemically. It is often alluded to five years ago as the new and strange disease, but it is not by any means a new disease.

An epidemic was described by an Arabian historian in the ninth century. One pestilence began in the Arabian dessert in 871 A. D., and reached the Mesopotamian area. In Bagdad its ravages were such that the deaths amounted to 500 or 600 daily. The first epidemic was said to have occurred in America in 1649, while others prevailed during the years 1789 and 1807. Pandemics, or at least very extensive epidemics, occurred in England in 1803, 1833, 1837, 1847 and 1875, and of course in 1889-90 and 1918.

The pandemic of 1918 was identical with the preceding one in 1889-90 except that it was more fatal, more virulent. This can be accounted for perhaps from the fact that the conditions were more favorable for its spread, its malignancy and its virulence. Large numbers of men were assembled in army camps, ship building plants, powder plants and aviation fields, and long trains were shuttling back and forth through our land, filled with army troops and officers, and general activities of every character due to the exigencies of the times, prevailed in our country.

It has been my privilege to have something to do as a physician with two pandemics of this disease, namely, that of 1889-90 and that of 1918, and I remember that about fifteen years prior to the 1889 pandemic a disease of the same character prevailed in our country and was known as "epizootic." Many horses had a similar disease at that time and was called "pink eye." Many of the older citizens and physicians remember it.

The pandemic of 1889-90 known as "la grippe" struck the eastern shores of our country in October, 1889 and extended into 1890. I located in Paducah, January 1, 1890, and, being a stranger and unacquainted, I saw but little of the disease in that pandemic, but it was epidemic several winters after that and I saw much of it. In 1918 I saw many hundred cases. As in the previous pandemic it struck our country in the east, about September, and spread with great rapidity, (just as fast as travel) until every hamlet and neighborhood throughout our broad land was thoroughly acquainted with its ravages.

It invaded Paducah the first week in October, 1918 and prevailed until December 15th, at which time it subsided about as abruptly as

was its invasion. The slight knowledge I have regarding influenza was obtained during the epidemic following the '90 pandemic and the pandemic 1918 and the succeeding epidemics during the two or three winters, and rather an extensive reading of influenza literature.

This is perhaps an opportune time to discuss the disease again, although it has been threshed out time after time in medical societies, but as it is now prevailing to some extent and all of us have to do with it, we may profitably study it again.

It concerns the eye, ear, nose and throat specialist, for he has much to do with it, or at least its sequellae, sinusitis, otitis, rhinitis, conjunctivitis and mastoiditis. It concerns the obstetrician, for it is frequently the cause of abortion and premature labor, it concerns the surgeon for he is inclined to postpone surgical work which can be postponed during its prevalence.

The causative agent, organism or organisms producing influenza, and its mode of transmission, has not yet been definitely determined. So much controversy has arisen over the etiology of influenza that it is difficult to determine just where to begin to record the numerous and often conflicting data concerning it.

In 1892 Pfeiffer described a microbe recoverable from the sputum and catarrhal secretions of those affected and it took the name of bacillus influenza. Weichselbaum in 1892 substantiated the findings of Pfeiffer as also did Grassberger in 1897 and others. In fact, practically the whole medical world, except the French, accepted the Pfeiffer bacillus as the etiological factor in influenza. Later however, in 1901 Leiner and Susswein in Germany, found the Pfeiffer bacillus in other diseases of the respiratory tract. The so-called influenza bacillus was found to be present in conjunctivitis, persistent bronchitis, diphtheria, scarlet fever, sore throat and whooping cough.

Extensive bacteriological investigations were made in the 1918 pandemic and since, resulting in the finding of not only the Pfeiffer bacillus, but the micrococcus catarrhalis, diplococcus pneumonia, streptococcus hemolyticus and others. The organisms often remain in the secretions of the nose or pharynx of individuals for many weeks, even for three years or more in some instances. They are found in those apparently healthy as well as in those having chronic catarrh. Possibly from such individuals sporadic cases arise and also epidemics.

It is very generally conceded that the initiatory cause, whatever it may be, enters through

*Read before the McCracken County Medical Society.

the respiratory tract, probably chiefly by "droplet infection."

The results of human and animal transmission experiments are variable and the work of some of the experimenters is frequently contradicted by the observations of others. Investigators have swabbed their own throats with a filtrate from an emulsion of influenza sputum without any result. Gipson and Connor inoculated two monkeys subconjunctivally with filtered sputum from cases of influenza. Both became ill on the sixth and seventh days, other monkeys remained unaffected. Rosenow and his co-workers were unsuccessful in producing influenza in healthy persons in a number of interesting experiments.

After a careful consideration of the literature regarding the etiology and mode of transmission of influenza, we must admit that there seems to be a great deal of doubt concerning it, and though one worker may succeed in convincing himself, he will find a large number of others, just as competent observers, who will hold an entirely different opinion.

The leading types of influenza are catarrhal, respiratory, gastro-intestinal influenza, influenza of the nervous system and influenzal fever. By far the most common type is respiratory and with it we have rhinitis, laryngitis, tonsillitis, tracheo-bronchitis, paranasal sinnsitis, influenzal pneumonia and pleuritis and empyema. These cases are often complicated with otitis, mastoiditis etc. In influenzal fever we have headache, prostration, neuralgia, myalgia, anorexia and depression. In gastro-intestinal influenza we have high fever, anorexia, herpes and diarrhoea. In influenza of the central nervous system, we may have influenzal meningitis, encephalitis, polynneuritis and persistent neuritis and neuralgias. In some cases we observed symptoms more or less of all these types in the same patient, which usually proved fatal with remarkable rapidity.

Having as I mentioned, rather an extensive bed-side experience in the epidemics following the 1889-90 pandemic and the pandemic of 1918 and subsequent epidemics, I think I am in a position to speak of some of the vagaries and multiform manifestations of the disease. One of the unusual things connected with the disease is the short period of incubation (if we may call it that) as frequently entire families were stricken down almost simultaneously, having been exposed two or three days previously. A notable instance of new cases developing after being in crowds, was shown here in Paducah. There was a slight cessation or diminution of the number

of cases reported to the health authorities on the 9th and 10th of November. November 11, Armistice Day, the streets were filled with people celebrating the victory of the allied armies over the German armies. About two or three days after, it increased by leaps and bounds.

There were some noticeable differences in the pandemic of 1889-90 and 1918. The mortality in 1889-90 was higher among old people and the disease did not prevail so much among children and young people, while the disease in 1918 was especially prevalent among children and young people and comparatively few old people died or had the disease. There was a difference of about twenty-nine years between the two pandemics and fewer years in the epidemics succeeding the 1889 pandemic. A large number of the old and middle aged people had had la grippe. I am finally of the opinion that great numbers had immunity conferred by having la grippe. Many, many times I was asked by elderly people who nursed and was constantly with "flu" patients, doctor, why do I not have it? I would ask have you had la grippe? They would answer "I surely did—had it bad."

It is unnecessary here, to go into a discussion of the symptoms. All of you are just as familiar with them as I am. I want to speak of two or three symptoms I noticed in many cases. One was the congested conjunctiva, "pink eye." Another was the scores of cases of slow pulse. I saw many, many cases having a pulse rate of 45 to 60 with high fever and other aggravated influenza symptoms. Another was the coat on the tongue. I have never noticed the same kind of a coat on the tongue in any other disease. It was a very peculiar greenish, brownish coat, thick and covered the entire tongue. Another symptom was the great number of cases of epistaxis, and another symptom was the great depression following the disease. The patient, as expressed by some one, "was sick a long time after he got well." This was true, even in mild, uncomplicated cases of "flu."

I noticed it in children who had had a simple, uncomplicated case of influenza. They would sit around, taking no interest in play or anything, were pale and anaemic and greatly depressed. We had great numbers of cases of pneumonia, practically all of the broncho-pneumonic type, followed by many cases of empyema. The broncho-pneumonia was sometimes diffused more or less through one or both lungs, sometimes in patches throughout one or both lungs. Sometimes it was of migratory type, changing from place to place.

TREATMENT.

It is quite well proven that pandemics spread along lines of travel, and the disease is so infectious or contagious and its period of incubation so short that prevention by isolation seems almost impossible. I believe it was a good idea to close movie theaters and other non-essential places where people congregate, but I was not in accord with the closing of schools, because I believe children were safer in well ventilated school buildings, than roaming the streets, crowded department stores and other like places. I have my doubts as to the efficacy of the gauze mask as a prophylactic measure. Some cities, notably San Francisco, compelled by ordinance all people to wear masks. I think there is some virtue in vaccine as a prophylactic measure. The tables and statistics published by Rosenow in the *Journal* of the American Medical Association are highly suggestive, if not convincing of the value of vaccine as a preventive of influenza.

I do not believe I was able to institute any medical treatment that materially limited the time or course of the disease. The most of my uncomplicated cases ran a course of six to eight days of fever and then frequently a tedious convalescence. I usually gave a purge at the beginning, containing calomel, and prescribed quinine, preferably the salicylate, and phenacetine. I sometimes combined with it salol, and usually a laxative. I experimented with various drugs such as menthol, guaiacol, iodine, etc., which seemed to do no particular good. I think it best to keep bowels open, the patient quiet in bed and as comfortable as possible with phenacetine or aspirine in combination with quinine, belladonna, hyoseyamus or Dover's powders. If the patient suffers or the cough is harassing give morphine or codein. Strychnine, spartein, or the whole drug, nux-vomica and caffein-sodium-benzoate if a cardiac stimulant is required. In the influenza pneumonia I tried various remedies, namely, carbonate of creosote, carbonate of ammonia, digitalis, blisters, etc. I think caffein-sodium-benzoate administered hypodermically, as needed in cardiac depression a very valuable remedy. I obtained but little noticeable effect from vaccines in the treatment of "flu" pneumonia.

I had fewer fatalities, fewer complications, and shorter duration of illness, as a rule, in the cases of intelligent people who lived in better ventilated, more sanitary surroundings, and whose sick rooms were on second floors, than I did among the poor, who lived in poorly ventilated houses and in dirty localities. It was often exasperating when I was working day and night trying to do my

full duty to these sorely afflicted people, going long hours myself without rest or food. I would sometimes make them throw open their doors when I would find them huddled together in filth and foul air, only to go back to find the same conditions, and I remember on one or two occasions to threaten to quit going and give my attention to people who would obey my instructions and needed my services.

EARLY SYMPTOMS OF GENERAL PARESIS.*

By W. R. SUMMERS, Hopkinsville.

In preparing a paper for presentation at this meeting it occurred to me that a topic dealing with early symptoms and diagnosis of general paresis would be of special interest. I also hope that the discussion will produce ways and means of emphasizing to the general practitioner the necessity of instituting treatment at the earliest possible moment.

While this paper will not be scientific, I will endeavor to bring forth something of value to the general practitioner.

General Paresis may be one of the easiest major psychoses to diagnose or it may be one of the most difficult. The ease of diagnosis depends on several factors, first, the stage of the disease, second, the type and form, third, the familiarity of the practitioner with this condition. We will not dwell on the pathological anatomy of general paresis to any extent, for the internist will not be so much concerned with the finer point in the diagnosis as he will be in making the actual diagnosis. Remembering that paresis has its etiological agent in syphilis alone, and that visceral syphilis is a protean disorder, and can simulate any known disease, so paresis can simulate any known mental disorder.

The early symptoms of paresis may be entirely somatic, and have no reference to the central nerve system. When one has had the opportunity of examining a number of paretics in the early stages, it will be noted immediately that many paretics deny syphilis, both by name and symptoms; even if a suspected paretic admits a specific infection the history will not, in the majority of instances bring to light any secondary manifestations. This fact has, at various times aroused the conjecture as to the possible existence of one or more strains of the *treponema pallida*. In most instances, the onset of paresis is so insidious, that the patient's complaints mask the vital underlying condition. This multiplicity of complaints referring to every one

*Read before the Third District Councilor Meeting at Hopkinsville.

of the bodily systems is quite likely to throw the physician off his guard and make him think that he is dealing merely with the neurotic or neurasthenic individual. Most all standard text books on psychiatry contain excellent word pictures of the standard paretic, but it is the paretic who is not standardized that causes the greatest number of faulty diagnosis. All text books have outlined the classical physical findings of paresis as consisting of the Argyll Robertson pupil, increased deep reflexes, tremor of the hands, tongue and lips; disordered speech and writing; and some ataxia of the extremities; all of these may be found in the classical paretic but their absence does not prove that the patient is not a paretic. When present the Argyll Robertson pupil can be considered as extremely valuable evidence of neuro-syphilitic infection, but its absence does not exclude this condition. The paretic's pupils, even if they do react to light, will if examined carefully show some interesting changes; inequality of the pupils should immediately stimulate suspicion, as should any irregularity or notching in their outlines. Sluggishness in the light reaction warrants investigation; the loss of the consensual reflex is valuable sign of early neuro-syphilis. It is quite easy to overlook the importance of increased deep reflexes, and regard them merely as a manifestation of some psycho-neurotic stage.

The tremor shown in a paretic's hands should be given due attention, and it may also be woven into the above mentioned diagnosis of a psycho-neurosis or may be even made to fit into the hyperthyroid symptom complex. Not suspecting the presence of a grave disorder, the practitioner may not be on the lookout for speech or writing distortion and may omit the special test that would reveal the abnormalities along these lines.

The ataxia, if present is less likely to be overlooked and when present would lead the physician to give it special consideration. There is another physical sign which is very important, and that is the paretic seizure. This seizure may be easily mistaken for and confused with a variety of other conditions, giving rise to convulsive attacks, namely; uremia, syncope, epilepsy, hysteria, apoplexy, etc., certainly the history or observation of the seizure of anything suggestive thereof should require of the physician a rigorous investigation, nor should he be satisfied until he has arrived as nearly as possible to the correct diagnosis. The practitioner might do well to remember that when dealing with what may appear to be some obscure mental

or nervous disorder, he should suspect paresis, and should not be satisfied until he has excluded it.

According to many authors, the correct diagnosis of paresis is not entirely dependent on the mental symptoms, and very often the practitioner has nothing but the physical examination upon which to form his opinion. To simplify matters I have grouped these points under various headings, in this way I feel that more emphasis can be put on the important features of paresis for the benefit of the practitioner, and thus place him on his guard, so that when the suspected or obscure case does present itself, he will be more adequately equipped to deal with it.

HISTORY

Always question carefully as to past venereal diseases, remembering that intercurrent gonorrhea may mask a primary lesion, particularly if the latter be very slight; any information obtained from the relatives regarding a slump in the personality, increased or unusual irritability, and recent laxness in business methods; a decrease in the patient's efficiency; any financial discrepancy, or ventures showing a lack of judgment, and a failing memory, is of primary importance; these apparently simple and easily overlooked changes of character often hold the key to the situation. Pay particular attention to what the patient himself has to say regarding his complaints, such as headache, dizziness, various aches and pains, disturbance of vision or of locomotion, and question him about his sexual desires and his potency. Furthermore the history of extremely bizarre behavior, explosive outbursts of violent and uncalled for temper, in short any deviation, slight or otherwise from the patient's usual behavior or character, are warnings that must not be passed lightly by.

PHYSICAL EXAMINATION

Here the points to be stressed are pupillary anomalies of any kind; the presence or absence of tremor of the hands, tongue or lips; the reflex picture and the quality of the reflexes; the special test for speech distortion, and note any sample of writing, presence of tremor, misspelled words and omissions of words or letters; the patient will occasionally volunteer or admit that he has difficulty in writing and in performing work requiring ready coordination of finger movements. Although placed last in this enumeration of important points in the physical examination, the serology of the spinal fluid and blood is of paramount importance; often it is the court of last resort. The physical examination of a suspected paretic must in the absence of a

serological examination be considered incomplete and inadequate.

THIRD MENTAL EXAMINATION

One must not expect the practitioner to be skilled in the performance of a complete mental status, but there are a few items in a mental status which he is sufficiently familiar with, that may be used when needed. The memory can be quickly and adequately tested for discrepancies, by asking the patient the principal dates in his life, such as birth, date of marriage, and age at the time; age of his wife, ages and dates of birth of his children; the dates of well known historical events, the names of the last three presidents, etc. Sometimes with very little urging or under the stimulus of tactful and well directed questions the patient will elaborate his delusional system in regard to egotistical ideas or any ideas of delusions or persecution, once started on this tact, the patient will often produce statements so at variance with known information regarding his personality, his business affairs, and his mode of life, that the practitioner cannot but regard them as distinctly pathological.

CONCLUSIONS

Any of the physical findings to which I have called attention, the mental status showing mental defects, poor judgment, a moral slump and dilapidation of the personality, combined with vague neurasthenic symptoms; any of the above, in no matter how mild a form they may be found, should at once be to the practitioner a red lantern and should demand a most searching inquiry into the cause and exact nature of the condition.

When it is realized that according to good authority, approximately five per cent of all syphilitics develop paresis, it is important that the disease be recognized in its early stages and heroic treatment instituted. Most cases of paresis that find their way into State Hospitals have a history over long years of specific infection, wherein, either the initial lesion was burned by caustic or a few doses of Salvarsan and a short course of mercury given to clear up the symptoms then present. When we realize that syphilis is one of the most stubborn diseases we have to deal with and requires eternal watching and treatment, the necessity of early recognition and care becomes at once apparent.

VARIOUS TYPES OF ENDOCARDITIS.*

By W. T. GERDING, Newport.

In looking over mortality statistics, one is struck by the number of deaths due to heart disease. In fact more persons die of heart disease or diseases associated with cardiac trouble, than of any other disease which afflicts mankind.

During the recent epidemics of influenza, while many deaths were registered as due to this disease, a previously weakened or diseased heart was the real or indirect cause of many of these deaths. So also in pneumonia, typhoid fever, surgical operations etc. Efforts to prevent heart disease, will lessen the mortality rate of cardiac affections and will also to a great extent lessen the number of deaths credited to other diseases; for with a good heart to begin with, a patient can be tided over and through many diseases, where with a weak or damaged heart, all diseases become more or less hazardous.

By far the commonest and most serious heart affection and one that especially affects the young, the very persons who should start life with a good and sound organ, is endocarditis. The reason for this is, the child is more susceptible to all the diseases that are likely to affect the heart, namely: rheumatic arthritis, (formerly called growing pains), tonsilitis, chorea, diphtheria, measles, etc., and, as you all know, the earlier the heart valves become affected, or in other words, the younger child the more serious the prognosis. "Growing out" of this condition might ease the minds of the parents of the unfortunate patient, but, as the physician should know, these cases are extremely rare.

The heart muscle is always more or less involved in all febrile conditions—a condition called cloudy swelling or albuminous degeneration. This may persist for a longer or shorter time, but generally clears up; not so with an endocarditis. An imperfect valve invariably remains imperfect, although nature tries hard to cover the defect by a ventricular hypertrophy, and apparently all is well. But alas! sooner or later the overworked heart begins to flag and then the unfortunate patient begins to suffer. While the picture thus painted appears gloomy, it could not be pictured otherwise.

In this paper, it is not intended to take up the many different heart conditions, but instead, to confine the discussion to the endocardites; nor will the attempt be made to make an extensive classification of these types, for the reason that it is a most difficult task. In looking up authorities it is

*Read before Campbell-Kenton County Medical Society.

noted that each one has his own idea as to classification, merely making an arbitrary grouping for his own working convenience.

We will now take for consideration the commonest type, the acute, with which you are familiar. This type affects children mostly for the reason, as previously stated, they are more susceptible to the acute infections, and for some unexplainable reason these diseases are more apt to affect the lining of the heart in children than would the same infection affect the adult or fully developed heart and well-seasoned valves.

Rheumatism, which is a very common disease in childhood is a disease to be dreaded. The vague joint pains are really rheumatic even though not severe enough to force the child to bed. Tonsillitis as you know, is perhaps one of the commonest and to my mind the disease to be most dreaded, chorea or St. Vitus dance, the jerky and dancing muscles of school children; the abscessed teeth and running ears, are all caused by an organism which is extremely fond of the endocardium.

We know of no more serious complication than a damaged valve in an immature child and none that will cause more grief if properly appreciated and interpreted by the fond parents.

What are the symptoms of this type of endocarditis? Coming as it does in the course of some acute infectious disease, the cardiac symptoms may be overshadowed by the present illness. Often there will be nothing to attract attention to the heart. The daily auscultation of the chest and heart will reveal the true condition only. The perfectly normal sounds of yesterday give way to a somewhat laboring heart with a more or less distinct murmur, usually very distinct. The usual course of the original disease is disturbed, the temperature assumes a different type; the tranquil breathing becomes one of anxiety; with this picture a protracted convalescence follows if death does not supervene.

The most frequent organisms found in this form of endocarditis are the ordinary trouble-makers, the streptococci, staphylococci, pneumococci and gonococci, while other germs such as those of typhoid, diphtheria, tuberculosis and syphilis have been isolated.

TREATMENT: When during an infectious disease we discover a murmur which was not previously present, the treatment resolves itself to limiting if possible the damage to the heart valves. All unnecessary excitement and all physical activity must be curtailed as much as possible. The condition must be at once explained to the parents so as to receive their hearty cooperation in order to bring about a fairly good heart in spite of a

more or less damaged organ which necessarily persists.

The causative disease, be it rheumatism, typhoid, chorea, tonsillitis or diphtheria, must each receive appropriate treatment, all the time paying special attention to the heart. An ice bag over the heart is useful. The salicylates are recommended and are probably of some service. Bromides are often advised especially if the patient is very restless. Treat insomnia if present. The most important thing to do however, is to keep the patient in bed for at least ten or twelve weeks so as to allow the cloudy swelling of the heart muscle to subside, and the heart otherwise adjust itself and bring about perfect compensation. It is imperative that the patient take this long rest and no compromise under any condition should be considered. Before discharging the patient, we should examine for foci of infection, lest in a short time we have another exacerbation and further crippling of the heart valves. The physician must regulate the life of the patient and from time to time caution him in regard to excesses of all kinds.

Chronic Endocarditis: As the name implies, a chronic condition with a thickening, shrinking and puckering of the valves, usually following the type just mentioned. The degree of damage depends upon the amount of recovery after the acute form. In some cases nature very kindly brings about a certain amount of restoration, while in others, the valves leak more and more as the patient grows older. Just what this or that case is going to do is for the future to determine. No mortal man can predict with any degree of certainty the outcome of any given case. Of course the future occupation and habits of the individual may be important factors. On the other hand, fortunately, the person may go through a long and strenuous life without difficulty. It seems, and it is the opinion of most observers, that those who develop their first attack early in life, say before sixteen years, have a more unfavorable outlook than those who develop it after maturity.

This type of endocarditis or valvular deficiency requires absolutely no medical treatment so long as the heart is perfectly compensated. We must not give digitalis or any other drug. If the patient with any kind of heart murmur comes under your care with compensation perfect, let it religiously alone, but treat whatever other condition you find wrong, such as anemia, albuminuria and particularly focal infections.

We often find a new-born child with valve trouble a congenital valvular disease. Here we

usually find a decompensation or purple child. Unfortunately the outlook is anything but good. Here digitalis is indicated.

I might say at this point, that clinically it makes little difference which valve or valves are affected, for the management and treatment are always the same; therefore the changes taking place in the different valves are not touched upon in this paper.

Sub-acute Endocarditis: This form also called infectious, ulcerative, malignant, vegetative, septic or endocarditis lenta, is particularly fatal. Authorities agree that recoveries from this type are rare. An individual with an innocent valvular defect, with compensation always perfect, slowly becomes ill with symptoms of such irregular type that any but the correct diagnosis is made. The loss of appetite may be the only symptom at this time. A slight cough of a persistent nature may bring thoughts of an incipient tuberculosis. A slight fever may make you think of walking typhoid, (pardon the expression) or a chronic malaria; in fact you may not think of the heart, for the murmur is the same as the patient always had. These symptoms occasionally disappear for a short time, only to recur again somewhat more pronounced. Still no correct diagnosis. A Widal test is now made and found negative. We are still more confused. The urine is carefully examined again and traces of albumen and may be a few leucocytes found, perhaps from a cloudy swelling of the kidneys. Still not sure of your ground. A white cell count is made and leucocytosis is found to be present. Your carefully prepared chart shows a temperature of great irregularity and of a moderate grade, but of a somewhat septic character. Still in doubt. A blood culture is now made with negative findings. Now more confused and you make no diagnosis. Later on however, you venture a diagnosis of typhoid fever of an irregular type, such as text-books describe.

About this time another culture of the blood is made, and a growth reveals streptococcus viridans. Again you examine the heart and you note that the previous murmur in harsher in quality and spread over a larger area; perhaps the other valves show signs of involvement. This fact, and the laboring heart, account for the bruit being heard over a greater area. Petechial rashes are often present, but here the resemblance to typhoid ends. Your diagnosis is now clear. The temperature is assuming more of a septic character. Chills are present. The pulse may be in keeping with the temperature, or it may show an altered ratio.

About this time the patient is very ill. There may be vomiting of a very persistent type that defies everything known to science. These cases may run on for weeks or even many months, when death ends the scene.

The fact that a positive diagnosis is not made early in a great many of these cases is no arraignment of the profession, for the symptomatology is extremely irregular and the cases assume so many different and varied types. A case may show up with unmistakable symptoms of malignant endocarditis very early in the disease, while on the other hand, as stated before, it may be some time before the proper diagnosis can be made with any degree of certainty. In some instances several cultures will have been made before one is found positive.

Let us now study the pathology. We have implanted upon the previously benign lesion, an infection of organisms of a very virulent nature, that cause ulceration; and with such excellent culture medium the organisms thrive and spread like forest fire throughout the blood system, thus causing a generalized infection. The broken down endocardial tissue as it becomes soft, is washed, small portions at a time, into the circulation causing embolic obstruction wherever it lodges, either in internal organs such as brain, liver, spleen, lungs, or in other soft parts; thus softening and abscess formation in various parts of the body can be expected and frequently happens. If in the brain, paralysis follows.

Now as to the source of infection. In this form of the disease, the streptococcus viridans according to Rosenow and Libman is now established as the leading factor, though there are many cases due to other organisms, the the pneumococci, staphylococci, influenza bacilli and gonococci. The infection may gain entrance into the system from diseased tonsils, lungs, puerperal uterus, the bone marrow, skin or recent traumatism of any sort; even the injured urethra following the use of a sound has been reported as a cause; also the infection may come from some unexpected source.

The question may arise, How can we determine whether we have a benign or malignant case to deal with? Authorities concede that it is often difficult to separate the benign from the malignant cases early in the disease. It may be necessary to make a number of blood-cultures before the true nature of the disease can be determined. Repeated negative cultures in cases of malignant endocarditis confuses the physician and leaves him in doubt, often for a long time.

Prognosis of this type. The outlook in the type classed under the terms, subacute and

chronic infections, is extremely unfavorable. According to Dr. J. A. Capps those in which the streptococcus viridans were found were 97 per cent fatal, in a series of several hundred cases.

Treatment of the type considered under the terms of malignant infections. While we have a condition that is fatal in such a large percentage of cases, yet much is to be hoped for in the management of these cases in the near future. With improved laboratory technique, giving us a wide knowledge of the true nature of the disease, even designating the particular type of organism causing the infection, the treatment may resolve itself to specific medication; but since we have no specific at the present time, we must do the best we can under the circumstances. We have a streptococcus septicaemia to combat. If there be a focus of infection such as a wound, diseased tonsils, abscessed teeth, these should receive appropriate treatment. Auto-genous vaccines should be made and tried. The anti-streptococcic serum might also be given. Remember, we have a malignant infection to deal with, consequently we are justified in trying anything that might offer the least hope.

Dr. Strietman of California, reported two or three cases that were successfully treated with magnesium sulphate solution given intravenously. We have in acriflavine a most powerful yet comparatively non-toxic drug which might prove useful in some cases. Dr. J. A. Capps only recently reported a few cures. His treatment consisted of the prolonged administration of cacodylate of sodium subcutaneously in quarter grain doses daily until the breath emitted a garlicky odor. Many other drugs of a chemo-therapeutic nature have been suggested, but the future will determine their efficacy.

CONCLUSIONS.

From our present knowledge and I believe it is generally admitted, that cardiac affections developing in childhood are mostly secondary to some other condition, which logically means that it is largely a preventable disease. The mother of a child with an infectious disease should be warned as to possible complications and sequelae. The running ear, the abscessed tooth, the diseased tonsils are commonly the foci of infection. We must educate the public and especially the parents as to the seriousness of the usual diseases of childhood.

When the child is unfortunate enough to have developed an endocarditis, the physician and parents must equally be on their guard to prevent if possible, future infections no

matter how simple, in order to protect the heart from further invasion, this being a place of lowered resistance. An individual with a valvular defect need not necessarily be considered an invalid, never-the-less he must be the object of especial attention. He should be advised by the physician as to the kind of work he must avoid. Strenuous athletic exercises must be forbidden.

PERICARDITIS.*

By H. C. CHANCE, Cumberland Gap, Tenn.

The most prominent characteristic of this disease is that the diagnosis is usually made at autopsy.

The record at Guys Hospital being eighteen per cent of diagnosis being made during the life of the patient.

John Hopkins Hospital claim to have made it in thirty per cent of cases during life and the Massachusetts General Hospital reports about twenty-four per cent. It is an inflammation of a synovial membrane and shows the same type course and complications of this type of tissue elsewhere from the same general causes. Of course, the fact that the heart works in this cavity makes some difference in the mortality or in the prognosis. It is probably more often an extension from some neighboring structure than is pleuritis, but gives a long list of the symptoms and some of the physical signs that are identical in the two conditions. The infection is usually one or more of the pus cocci, including of course the pneumococcus and frequently the tubercle bacillus. It seems to follow and sometimes precedes acute rheumatic infections of joints and especially those cases due to tonsillar infection. It is a fairly common complication of scarlet fever and here is where I have seen most of my cases.

It is most commonly called pleurisy and the mistake is possibly as easy to make as any other in medicine.

The temperature, pulse, pain and breathing being almost, if not quite, the same and its location makes this a natural mistake.

It is also mistaken for pneumonia for the same reason and again except for one or two cardinal symptoms of the latter, it is an easy mistake to make. The brick dust sputa and the crepitant rale are of course absent in uncomplicated pericarditis but add a pneumonia and it will overshadow the former condition so completely that the average cursory examination by the clinician of average ability will fail entirely to show its presence.

*Read before the Bell County Medical Society.

During the first stage there is acute pain, fever, limited breathing and usually accelerated pulse. There is now a rubbing or friction sound almost the same as in pleuritis, modified at different phases of the respiratory act. This is heard only over the cardiac area and seems to be very close to the ear. It is not heard well outside the axillary line. This distinguishes it from pleuritic rub unless the latter disease is present also which it frequently is.

There is given I think, by Loomis and repeated by Osler a sound that it sometimes present which if you hear, you may be practically assured of pericarditis; this is the new leather squeak. I have been able to hear this and once heard, it is unforgettable.

The disease seems to frequently stop here and the membrane gradually return to normal but may go on through the stage of effusion. This may be small in amount and rather viscid in quality or it may reach two quarts and be strictly serous. The fever declines, the pain is much lessened but the pulse and breathing do not correspondingly improve. The heart sounds recede further and further from the ear, the area of cardiac dullness increases, sometimes very swiftly and the patient begins to "look sick," at this stage if we do the proper thing in the proper time we get one of the prettiest results in medical work. But on account of the character of the infection or lack of patient's resistance we sometimes have effusion changed rapidly to pus. When this occurs we are apt to have a rather serious condition left even if we succeed in saving the patient's life.

The visceral layer and even the muscular structure of the heart will very soon show damage in the presence of a pericardium full of pus. Quickly and thoroughly drain is the only safety from future morbidity even if the patient lives. We are taught by some authors to aspirate frequently and expect recovery in a large proportion of cases. This is hard for me to get. I can only see safety in free tube drainage of a condition like this.

Aspiration is the remedy in serious effusion and should be done as soon as the heart's action becomes labored. It can be reached in the sixth or seventh interspace anywhere forward of the mid-axillary line or if very extensive it is easily reached in the angle at the left of the xiphoid cartilage.

Sometimes the fibrinous exudate that is poured out even in small quantities, too small to find by any known means of examination cause adhesion between the layers of the membrane that seriously cripple the heart's action and leaves bands across the cavity that will always give the heart a cramped position.

These cases in the chronic stage give no end of trouble in later years both to tell what is the matter and give the patient any relief from a very distressing line of symptoms.

The diagnosis in this case is very much simplified by the absence of any distinct murmur and a good radiograph will throw an immense amount of light on the condition. It will show a heart of normal size but some abnormal position and decided fogging of its surface. I have one in mind that lies almost horizontally in the chest. This heart has been treated by good clinicians as several different types of heart lesion and really the heart is perfectly normal except in the position it occupies.

In the beginning pericarditis should be treated with ice or sedative until the acute stage is past and aspirated once or more as soon as effusion is discovered or if found late a blister will frequently clear it up like magic. Don't for humanity's sake blister in the first stage. In fact ice begun intermittently and then continuously is the one best bet here.

The Diathermic treatment introduced by Stewart for pneumonia should give just as good results in this condition, however, I have as yet not seen any report of its use.

I would give a somewhat milder treatment than he recommends for pneumonia at first; gradually working up from 600 ma. to hear a 1,000 or even 1,200 ma. for twenty or thirty minutes.

This treatment is also the best promise in the presence of the adhesions of the chronic stage. They seem to melt down under the heat like snow before sunshine just like adhesions anywhere on serous surfaces. Heart stimulants don't seem to me to be indicated because the heart is already doing its best under the circumstances.

The worst trouble with this disease is as stated in the beginning the practical impossibility of a diagnosis in the practice of the average man. When Osler acknowledges a seventy per cent error it is time for the balance of us to wonder can we tell it at all.

With a pericardium full of fluid it would look easy but I have seen it turn out wrong there.

I was called once to drain a pleura and the signs and symptoms all appeared regular, but on hunting the pus with a needle it was clear that drainage would be impossible at the best site.

Withal until the drainage tube was in place and a good portion of the pus was evacuated we thought it was pleuritic but found it out when the apex beat began to knock on our tube.

Our patient got well and is still living after thirty years, but the lesson registered on my mind very thoroughly.

I have not mentioned the traumatic type because this is practically always fairly plain and the location and extent of the trauma will govern the prognosis and treatment.

Always examine your pneumonia cases carefully for this condition and don't forget that it seems more often to go with a right sided pneumonia than with one on the left side and you may catch a case now and then. Also carefully examine any case of scarlet fever that seems to be breathing poorly and you will be rewarded here more often than in probably any other condition. Tuberculosis will likely stand next as a causative condition.

Then when you get a peculiar heart some months or years after any acute chest symptoms don't give it up without a good picture carefully read.

ARTERIOSCLEROSIS.*

By O. P. NUCKOLS, Pineville.

In this symposium the subject of arteriosclerosis was assigned to me, and I am going to presume that each member of this society is perfectly familiar with the anatomical structure of the arterial system and its function.

It is sufficient to say that the inner lining of the arteries, or tunica intima, is composed largely of fibro elastic tissue, while the tunica media consists of smooth muscle fibers, intermingled with elastic tissue, and the outer coat is composed largely of fibro-elastic tissue. It is needless to say that these arterial tubes when in their normal condition are highly elastic and expand and recoil upon the volume of blood thrown into them by each cardiac contraction. It is this power to expand and recoil, that maintains an equable pressure in the capillary terminals of the arterial tree. It is also needless to say that the healthful nutrition of every organ and tissue of the human body depends upon these factors, for the normal distribution of blood, supplying them with nutritive pabulum from which to build. Hence the old adage that "a man is just as old as his blood vessels" which only signifies the degree to which this function is impaired by sclerotic changes. It is well known that as the body ages, certain changes take place in the arteries, which lead to thickening and inelasticity of their walls.

Thayer and Fabry have found after much study and investigation that up to the third decade, there is only strengthening of the intima and adventitia, and during the third

and fourth decades there is an increase of connective tissue, in response to the strain upon the vessel wall.

ETIOLOGY.

The causes that produce arteriosclerosis are many and varied, no two persons have the same resistance to poisons that circulate in the blood stream. First we must draw a line between those cases that develop as age progresses from the debris of ordinary wear and tear, and the younger cases due to other causes, or the acquired cases. We must take into account the matter of heredity in the study of our cases, there can be no doubt that syphilis in the family history plays an important part. Syphilis in a grand-parent may leave its stigma in the succeeding generations, in the way of poor arterial tissue which is prone to early degeneration.

No age, sex, or race are entirely exempt from hardening of the blood vessels, however, men are much more prone to this malady than women, largely due to greater exposure and to occupation.

Occupations that call for prolonged mental strain accompanied by worry, is one of the frequent causes, and in fact any occupation that calls for prolonged mental and muscular strain may act as a predisposing factor.

Overeating, chronic poisoning by tobacco, tea, coffee and alcohol are to be taken into the etiologic account. Chronic renal disease is one of the most frequent causes of hypertension which often results in arteriosclerosis, also sclerotic changes may take place in the kidney primarily.

There are many writers of the present day who attempt to make the ductless glands responsible for almost every disorder of mankind, and we must confess that this field lends itself very readily to speculation, but proof is very much lacking, and until more definite data is furnished by competent investigators, an opinion in this malady must be held *sub-judice*, unless it be the possible exception of hyperthyroidism.

From personal observation as well as from the experience of others, I am inclined to look upon imperfect metabolism, also intestinal stasis, with its resulting absorption of toxic material from the intestinal tract, gall bladder infection and gall bladder stasis, as being the most frequent source of a state of hyperpiesia, and if continued over a great length of time the gradual development of arteriosclerosis.

When Meechnikoff sought to prolong life by destroying the intestinal flora that had to do with intestinal putrefaction, he was seeking to prevent the toxemia that so frequently results in arterial changes which are responsible for the markings of age.

*Read before the Bell County Medical Society.

These intestinal toxins as well as the end products of imperfect metabolism re-act upon the vaso-motor nerve centers and produce contraction of the peripheral capillaries, thus raising arterial tension. Accompanying this process of toxic absorption, will usually be found an increased blood acidity which tends to free the alkaline phosphates and favors calcareous deposits in the arterial wall. It may be readily presumed that this continued state of hyperpiesia, throwing greater work upon the walls of the blood vascular system will in time increase the fibrous and muscle tissue and hardening of the arteries. If there be added an appreciable deposit of calcareous materials into the tunica intima the process is hastened, and made more complete. In some cases a toxic endarteritis causes proliferation and thickening of the tunica intima as a primary step in arteriosclerosis.

DIAGNOSIS.

The diagnosis in a given case may be simple, difficult or impossible. If there be superficial vessels easily palpable, and in some cases easy of observation, the diagnosis is simple. When there is no appreciable hardening of the superficial blood vessels the diagnosis is not so easy and may be impossible. When there is high blood pressure that has existed for any great length of time and does not yield to treatment, the presumption is, that there has been changes in the walls of the arterial system. These changes may be local and confined to some particular organ, or may involve a considerable portion of the splanchnic system. It must also be remembered that some cases of arteriosclerosis do not present a high blood pressure.

In the more obscure cases the diagnosis must be made by a careful study of the blood pressure, combined with the functional disturbances of the various organs and tissues of the body. In some cases calcified peripheral arteries give X-ray shadows.

TREATMENT.

The treatment leads us into a labyrinth of different indications to be dealt with, and the man who undertakes to handle his cases by rule of thumb, or any special book formula, will fail from the beginning, however, there are certain principles that must guide us as sheet anchors in all cases. The application of these fundamental principles is a matter of individual skill and personal technique.

The dietetic and hygienic management of all cases calls for our first attention. It is of first importance that the advanced cases with high blood pressure, should have a period of rest at the beginning of treatment. Combined

with this should be free elimination if patient is robust, more guarded if patient is debilitated and circulation bad. This regime should be continued a sufficient length of time to clear the system of the accumulation of toxins resulting from imperfect metabolism, and sluggish elimination of body poisons. The further treatment resolves itself into preventive and curative measures. There is quite an element of doubt about improving the damage that has been done before the case is presented for treatment. All that can be reasonably hoped for is to arrest its progress, it is of course dealing in mere speculation to claim to restore to normal, blood vessels that have become sclerosed to any appreciable extent. It is my opinion that much more can be done in the way of preventing further damage than in the way of cure. If we analyse the causes that go to produce arteriosclerosis, and remove in so far as can be those factors, much can be done in prevention.

I believe it was Dr. Oliver Wendell Holmes who said if we wished to live to be old we should begin to choose our ancestor one hundred years before we are born, and since we cannot always do that, many of us are hereditarily predisposed to arterial degeneration. There can be but little doubt that occupation, overwork, both mental and physical, overeating, food poisons, infections, syphilis, and chronic alcohol and tobacco poisoning, are all factors in bringing about these arterial changes. Then the logical sequence follows that to prevent arteriosclerosis these factors must be eliminated from the plan of life. Hygienic living then becomes a prime factor in the treatment, both as a preventive and curative measure. It would be going entirely beyond the limits of this paper to undertake to outline a complete dietetic regime or to engage in the discussion of the wide range of drugs advocated in the treatment of this disease. The exclusive milk diet has many advocates, especially in advanced cases with renal complications. Where milk is well borne and perfectly digested, it makes an ideal diet, for a time at least, however, in most cases a more mixed diet, with a low protein content, is better borne and more satisfactory in every way.

As to the use of drugs I am of the opinion that sodium iodide intravenously used is the only one that has much value of a permanent nature. The nitrites for reducing blood pressure are uncertain and evanescent in their effect. Hot packs and sweat baths will undoubtedly reduce blood pressure for a time, and are of value in some cases, especially as an emergency measure. The intravenous use of radium is being advocated by some as a

therapeutic measure in hypertension, and is also claimed to facilitate protein metabolism, which is helpful, however, for the present this must be held as in the experimental stage, and further work must be carried out before it can be put forward as a therapeutic agent of known value.

My personal experience and belief is that a very large per cent of the cases we meet with in daily practice, are the result of imperfect cell metabolism, and that no single mode of treatment is so efficient in lowering blood pressure, and improving general metabolism and the elimination of waste products as is the auto-condensation electric current.

By its effect upon the vaso-motor centers the capillaries are dilated and blood pressure lowered. By its destructive action upon germ life, by the setting free oxygen along the path of this high frequency current, much of the systematic waste matter is eliminated through the natural channels as has been shown by laboratory tests, and fully demonstrated by clinical experience. It has further been shown by laboratory tests that calcareous substances can be made to disintegrate by the use of this electric modality and it is very reasonable to conclude that calcareous deposits in the vessel walls may be broken down to such an extent as to make the vessel wall more patent. However, this may be, I am sure that this current properly administered does have a powerful effect upon body metabolism, exerting a powerful soothing effect, lowering blood pressure, and constituting in my opinion the best form of treatment for arteriosclerosis.

There are a multitude of symptoms due to cardiac, renal, cerebral and other organic changes that must be dealt with as they arise, and into the treatment of which I will not go in this paper, but will rather leave you only these general principles for consideration.

Early Diagnosis of Syphilitic Chancre.—

Hudelo emphasizes the importance of early recognition of syphilis for the abortive treatment. In every case of soft chancre one should suspect syphilis. The seroreaction is necessarily negative in the stage (except for some possibilities with the use of serum from the lesion), but the presence of spirochetes is decisive, and should be looked for every day or two; by 0.5 to 2 mm. deep scarifications, followed by expression of the serum. The border between the lesion and the healthy skin may be crowded with spirochetes. The diagnosis before the tenth day of the disease should be the rule, not the rare exception.

ALBUMINURIC RETINITIS.*

By J. P. EDMONDS, Middlesboro.

The subject assigned me is one of great interest and one we should always be on the lookout for, there is a great deal written about it in our text books, while cases are not numerous, there are a great number the physician never sees until the case has progressed and the patient in coma or death near, patients usually seen with albuminuric retinitis are over forty years of age, sometimes observed in children and not frequently in adults, it is more frequent in men than women,

CASE I.

It occurs:

- (1) Small contracted kidney.
- (2) Chronic Diffuse Parenchymatous Nephritis.
- (3) Nephritis of Scarlet Fever.

As a rule both eyes are involved, if only one, the second eye usually suffers within a year.

Porter says: In the majority of cases of renal disease, there is no disease of the retina and a majority of renal cases also showing retinal changes in the blood vessels, therefore eye diseases do not depend so much on the existence of renal affection as on the fact that the blood vessels are diseased.

In some cases papillitis occurs either in the beginning or long after retinal changes and in these cases there is a co-existent brain lesion with increased intracranial pressure and a fatal result is to be expected. Papillitis is often seen without brain lesion.

Usually the first complaint to the physician is bad vision, headache, vomiting and the usual train of symptoms of irritation of the brain cells, the patient may or may not be sent to an oculist for examination, the vision continues to get worse and they seek an oculist, then an examination of the fundus reveals the condition of the blood vessels and the destructive process taking place, we see the hemorrhages in the retina and the glittering white patches, hemorrhages predominate in early stages, later the white patches are seen, the ophthalmoscopic picture is typical when the white patches and stellate figure is present. This picture is sometimes seen in sarcoma of the brain and diabetes mellitus and also of a few cases whose urine never contained albumen, as in poisoning, anemia and syphilis.

Vision is disturbed as a rule without contraction of the field and without loss of the color and light sense. Central scotoma is often present, loss of vision is usually slow.

*Read before the Bell County Medical Society.

rarely rapid, sometimes vision will be obliterated in a few weeks, complete blindness rarely occurs.

The eyes may show improvement or complete cure, if the kidney lesion improve we may hope for ocular improvement which is usually slow, some cases show alternating improvement and loss of vision for a long period.

In nearly all forms of Brights disease the blood pressure is high, arteries of the aged is atheromatous and the left ventricle is hypertrophied, in the absence of valvular lesions look for renal disease.

1. For differential diagnosis the urine must be looked into.

2. The condition of the heart.

3. Ophthalmoscopic changes. This can never be taken as an absolute certain guide.

CASE II.

Saturnine poisoning, the diagnosis between albumen and lead poisoning must rest on 1. History of the patient's occupation, 2. The blue line on the gums. 3. Lead in the patient's urine.

Syphilis. The diagnosis is established by an examination of the blood.

Hysteric Blindness. These occur during the puerperium. If albumen is found in the urine there is difficulty in diagnosis there is an absence of changes in the retina, unless the case showed albumen before pregnancy.

If you have a chronic nephritis and pregnancy occurs, you may have an attack of acute nephritis, and the pregnancy would be a serious complication and the question of inducing labor arises, without the induction of premature labor the prognosis is most serious. If labor is induced you may save the patient and thereby save her vision. If labor is not induced and you try to carry her to full term you may have a blind patient. This condition is most frequently seen in young women.

The albuminuria of pregnant women demand careful attention from the family physician. If there is a progressive loss of vision from retinal changes most surgeons believe a premature labor is justified and when a preceding labor has left the patient with bad vision or blindness abortion should be produced at the earliest possible date after the onset of retinitis or amaurosis.

The diseased kidney is the cause of the retinal lesions not by reason of any particular type of organ, but in consequence of deficient elimination and the retention of urea or of some substance intimately related to urea.

The presence of granular cells does not constitute a lesion but is merely a transitory phase in the process of disintegration of the exudative masses.

Albuminuric Retinitis is a serious underlying condition and usually foretells the early death of the patient.

Prognosis most unfavorable in chronic nephritis, more favorable in acute nephritis, and relatively most favorable in albuminuric nephritis, about eighty-five per cent is said to die within two years.

TREATMENT OF EPILEPSY.*

By W. G. KINSOLVING, Eddyville

This is a disease of very great importance, but does not receive a great deal of attention. It is one of the most horrible diseases that afflicts mankind. Yet the majority of doctors say it can't be cured and pass it by with the greatest carelessness.

In ancient times the people regarded an epileptic as one possessed of a devil and though this horrible condition was a result of sin committed either by the subject or the parents and, therefore, people were afraid of them, shunned and despised them; and even today most of the people are afraid of them, shun them and make careless and cruel remarks about them; and many doctors have no patience with them and these unfortunate creatures are left to suffer the horrors of the damned in mental misery and woe.

Not only Epilepsy, but some doctors say there is no treatment for pneumonia or typhoid fever; and a short time ago, I heard an elderly physician say "There is no treatment for the Flu". I never argued the case with him, but I thought any doctor that had no more faith than that in medicine, had better quit the profession. I think his patients are in bad hands.

In fact it seems there is a fad in the profession now to study pathology and bacteriology and if they can find a vaccine or serum that will kill the germ immediately and have a certain marked specific action like antitoxine in diphtheria, then they have a treatment for that disease; otherwise, they declare there is no treatment.

This practice is certainly very absurd. Of course, it would be ideal and grand if we could have a specific for every disease. A certain cure all for every ailment; but until we can attain to that perfection in therapeutics, we must apply with diligence the means we have at hand.

What we need to do is to study materia medica and therapeutics, and when we have

*Read before the Southwestern Medical Association at Paducah.

no specific, we must treat the patient according to indications and not wait for a specific for each disease.

Etiology and diagnosis are very essential, but proper treatment is the most important. The doctor that can diagnose a disease and can't treat it, has not done much good.

I believe in the treatment of disease. I believe that most diseases can be cured or benefited by proper treatment. I believe that pneumonia and typhoid fever are amenable to treatment, and many cases are cured by proper treatment, and many cases die by improper treatment, or no treatment at all. I believe that a large per cent of Epilepsy can be cured by proper treatment, but it requires most persistent, careful, scientific treatment for at least one year to cure any case of Epilepsy. I will never promise to do any Epileptic any good unless they will follow my instructions and treatment in minutest detail for one to four years.

Charles Dickens announced to the world the secret of success in one word and that word was attention, attention in the minutest detail, to be successful in the treatment of Epilepsy requires bull dog tenacity and persistent determination to never give up for at least a year or two.

You can't cure syphilis in less time than a year or two of careful persistent treatment. You can't cure tuberculosis without long continued proper hygiene and careful rational treatment and observation of the laws of health in the minutest detail. You can't even cure a case of chronic constipation and break the habit under one year of careful attention and you can't cure Epilepsy by writing a prescription for bromide of potash and do nothing more.

To be successful, there must be earnest and determined cooperation of the family and patient with the doctor, and the doctor must have perfect coordination in every minute detail of his treatment.

He must examine his patient from head to toe and every pathological defect must be corrected if possible.

In these persons who have nervous tendency toward Epilepsy, indigestion is a prolific cause. The great Julius Caesar, whom Shakespeare calls the foremost man of all the world, was an epileptic, but by abstemious living subdued the malady and afterwards by his great genius and power revolutionized the history of all subsequent ages.

Notice the languages abstemious living:—Caesar was a wise man and cured himself by abstemious living, temperate in all his habits. More people die by intemperance in eating than by the abuse of alcohol; and most epilep-

tics are inclined to gormandize. I knew a young man, an epileptic who killed himself by the excessive drinking of soft drinks. Filled himself of that dope one night, then went home, took a fit and died. On the other hand, I know another man, who had epilepsy, cured himself by eating no supper and by being temperate in all other ways of living.

I always tell my epileptic patients to use coffee or tea sparingly—one cup for breakfast, not too strong—no whiskey, no tobacco, meat at dinner—not too much. Vegetables at dinner but sparingly and leave off anything that experience proves injurious to them. Light supper and nothing between meals. No soft drinks. Some fruit at bed time or between meals, if it agrees with them, but if not leave it off.

I have used bromide of potash some but by itself it is not very efficient. Peacock's Bromide which is a combination of all the bromides is better. I have cured some cases with Peacock's Bromide, Hoffman's Anodyne and Peacock's Bromide combined is good, but Neuresine is the best sedative and antispasmodic in epilepsy I have ever tried. Does not often produce bromism and can be given for years with no bad results. It must be given in proper doses in connection with either remedies indicated 3 or 4 times a day at first then as needed for one to four years.

A good many years ago before I ever commenced the study of medicine, I know a bright girl about 9 years old who had a serious case of epilepsy. Her attacks were nocturnal and every night just after going to sleep, she would be seized with a violent convulsion. The family physician prescribed bromide of potash but it did no good. The family were horrified and heart broken because it seemed the bright lovely charming girl was deemed to imbecility and to a condition more horrible than death itself.

Her father heard of a specialist in nervous diseases in St. Joseph, Mo. He wrote to the physician and gave her his treatment. The doctor gave him printed rules and directions and a strict list of diet and told him he must adhere to all rules of treatment for one year or longer if he expected any good results. The father complied with these rules and regulations in every detail for about 2 years. The bright and lovely girl was cured of the horrible affliction, grew to be a noble woman, married and raised a happy family and is now a woman about 50 years old, an intelligent, noble woman, a joy to her family, a blessing to her community in which she lives, and a living brilliant demonstration of what

careful, persistent proper treatment can do to cure epilepsy

Several years ago I treated Adelle T. and Roy T. cousins, whose grand father died in the asylum at Hopkinsville.

I gave Adelle Peacock's Bromides in connection with tonics, laxatives and liver medicine according to indications. She improved some under this treatment, but the bromides would not control the convulsions sufficiently. Then I gave her Valerian, Hoffmann's Anodyne and Peacock's bromides in combination, kept close watch over her secretions, and excretions, diet and general health and she gradually improved and in about 3 years she was perfectly cured and is now entirely free from epilepsy and a happy intelligent girl.

In a year or two after this girl was cured, Roy T. a cousin of Adelle, developed the same affliction. I treated him for a while on the same line of remedies, but was not very successful. Then I changed the bromides to neuresine and he began slowly to improve and after 4 years of careful, persistent patient treatment he is a well boy, freed from the horrors of epilepsy and the family are charmed and delighted with results of the treatment.

Frank F. 25 years old with an obstinate case of epilepsy was cured by the same patient, careful persistent treatment with tonics purgatives, Neuresine, strict regulation of diet and habits—treatment continued for two years.

James M. was cured by two years course of treatment with Valerian, Peacock-Bromides and Hoffmans-Anodyne. This man was about 68 years old. He gave up the use of tobacco and followed strict rules in regard.

There are some of the cases I have treated in the last ten years. I could give you a good many more. I have had good success in the treatment of Epilepsy ever since I commenced giving it special attention and I have written this paper to inspire more interest in the profession on this most important disease which is a fearful scourge throughout the whole world.

In conclusion, I will say we have a strong campaign, state and national, against tuberculosis, and a strong organized crusade against venereal diseases and wonderful propaganda for the education of the people along the line of general sanitation; but epilepsy is a disease that causes as much trouble as any other malady and there is little or no attention paid to it. I think epilepsy is more amenable to treatment than pulmonary tuberculosis and yet thousands of these poor unfortunates live a miserable life,

shunned by everybody, ostracized from society, often their minds are dethroned and they are raving maniacs; appear like they are possessed of devils, the horrors of Hell are upon them and often they lie locked up in the walls of a lunatic asylum away from their home folks in woeful solitude, no one to pity and sympathize with them, no one to cheer them.

It is our duty to pay more attention to these unfortunate creatures. If we will take more interest in them and give epilepsy the attention and investigation that we give tuberculosis and general sanitation we will be able to cure a great many of them and make happy homes, grateful patients and thousands will rise up and praise us and bless us for saving them from the horrors of the damned.

ATYPICAL PNEUMONIA.*

By E. L. PALMORE, Hiseville.

The past winter and spring has produced in my practice some very interesting cases of atypical pneumonia, and from what I can learn, other physicians have had similar experiences. So I have decided to make a few remarks and report to you some of these cases that were most interesting to me, hoping thereby to elicit a free discussion of these cases with treatment and general management, also reports of similar cases and final results.

When I was a medical student some twenty years ago our professors seemed to have a pattern case and treatment,—all the earmarks of a pneumonia were brought out and a cut and dried treatment was given; there was nothing omitted in a case of pneumonia to hinder you from making a positive diagnosis on your first visit. Now you older men know just what kind of a predicament you were in the first time you had a patient that looked like pneumonia but you could find no prune juice sputum, no crepitant or subcrepitant rales, no bronchial breathing and no consolidation; yet you looked over the lungs carefully and prayerfully at each visit for four or five days before you ever heard a sound that was pathognomonic or just to be honest, possibly your patient got well and left you guessing at what he had. Some cases like this actually happen, and to most of us. Is it a wonder that many young men with the ability to make good physicians hang up their saddle bags and quit?

It is not my intention to enter into the cause, management and treatment of pneu-

*Read before the Third District Medical Society, Glasgow.

monia in detail, but to make a few remarks and report a few cases. We all know our text book definitions of pneumonia, its etiology, course and treatment, also its complications.

As I said before it is my intention to speak of atypical pneumonia. For some reason last winter and spring produced more of these pneumonias than any season within my experience.

Case I: I was called to see a boy aged 13 years, who gave history of having had a cold but was improving. Was taken suddenly ill with high fever and very nervous. I found a temperature of 105°, respiration 40, pulse rate 130, harsh cough, no expectoration, no pain to speak of, could hear only large moist rales of bronchus. On the following day I found a consolidation just below the right nipple about one inch in diameter, could be heard in no other area. On third visit I found a consolidation in the base of left lung; the areas remained about the same throughout illness. Crisis occurred on ninth day with recovery.

Case II: Boy, aged 13 years, taken suddenly ill complaining with pain in left hypogastric, pain and tenderness on pressure, slight cough, very little if any expectoration, temperature 104°, respiration 42, pulse 120. Examination of chest revealed nothing to me and never did; pain in left hypogastric disappeared on fourth day. On seventh day I found him with a temperature of 97°, respiration 24, pulse 80.

I saw a case somewhat similar to this with another physician about sixteen years ago. Our diagnosis might have been made before recovery but she had a severe epistaxis throughout that sometimes required packing to control, so you see we had blood streaked sputa.

Case III: Girl, aged 9 years, had measles some three weeks before being taken suddenly ill with nausea and vomiting, vomitus green and sour, constipated, tenderness all over abdomen, no pain in chest, slight cough, very little expectoration, a few bronchial rales, temperature 105°, respiration 50, pulse 130. At first I thought this child's trouble was intestinal. I could find no pneumonic sounds in chest, intestinal symptoms cleared up in three or four days but temperature stayed up around 104° or 105°, respiration from 50 to 60, pulse from 140 to an imaginary 180, patient comatose most of the time. About the sixth or seventh day I could hear bronchial breathing in lower lobe of left

lung; crisis on ninth day. Respiration after crisis remained above 50 for ten days then gradually coming down to normal in about 16 or 18 days.

Case IV: Boy, aged 9 years, had been going swimming in creek in later part of May, contracting a severe bronchitis for which I prescribed. Some 8 or 10 days later I was called to see him and found him complaining of sick stomach and pain and tenderness over gall bladder and bile ducts, temperature 101°, respiration 28, 120 pulse rate, mucopurulent sputum and large mucus rales heard all over area of lungs. Remained in about the same condition for seven days when a younger brother got sick, developing lobar pneumonia filling whole of left lung, and the crisis about this time made my diagnosis of a low grade pneumonic infection. Both recovered.

My treatment of these cases is as good nursing as possible, quiet, light diet, looking well to elimination, treating cough and pain as distress indicates, keeping patient as comfortable as possible, and always watching the heart to see its first signs of weakening, and beginning support at first sign.

One of the most lamentable things to us in the treatment of pneumonia is that medicine has not made much progress in pneumonia and the treatment remains about the same as our grandfathers left it. Possibly the most improvement is in the nursing. But too many die in spite of us yet.

Prolonged Rest Cause of Puerperal Sepsis.

—Corby mentions facts that tend to indicate that women who rise after labor, perhaps, in some instances, too soon, are less liable to infection than those who stay in bed for a considerable time. Judging from measures taken by Nature during and after labor to get rid of noxious bacteria that may have found entrance into the genital tract, we may assume that an important function of the lochia is to wash out debris that may have remained in the uterus after labor is ended. Another function of the lochia is to flood out any patho-entrance to the vagina or uterus. The dorsal decubitus causes the lochia to stagnate in pools in both the uterus and vagina, thus forming veritable breeding beds for the breeding of bacteria. Furthermore, the lochia retained in the uterus, acting as a foreign body, interferes with adequate involution, leaving the cavity larger with freer entrance for the bacteria.

LYMPHOSARCOMA OF THE TONSIL. CASE REPORT.*

By SAMUEL G. DABNEY, Louisville.

I have recently had under observation what I believe is a rather rare case, i. e., a case of lymphosarcoma of the tonsil, at least that is the report made by the pathologist. I have seen two or three cases of sarcoma of the tonsil, they were all large, firm growths; but this tumor is very soft and rather odd shape, it extends both upward and downward in the throat, and in the lower portion it protrudes considerably over the top of the windpipe. That was one reason that the case looked serious. The tumor had grown rather rapidly. The woman's health was not much impaired; there was slight swelling of the glands at the angle of the jaw; she has had very little pain. Other than the mechanical obstruction to respiration she made little complaint.

The diagnosis of lymphosarcoma I feel safe in saying is correct as it was made by a competent pathologist. I removed a piece of the growth about the size of a chestnut for examination, as I wanted to be certain of getting a satisfactory specimen; there was very little hemorrhage. I asked one of our roentgenologists what method of treatment he thought would be best, and he said the high voltage roentgen-ray would be preferable to anything else, though he also uses radium. I report the case simply to get an opinion on the prognosis and treatment.

DISCUSSION.

Louis Frank: We have treated two or three cases of malignant disease of the tonsil with radium, and I think the general consensus of opinion at the present time is that these cases are best treated by means of radium.

About eighteen months ago in a paper read before the surgical section of the Southern Medical Association, I made the statement that we believed no case of cancer of the cervix uteri should be treated any other way than with radium. I am absolutely confirmed in that belief, and unless something occurs to cause me to change my views, I shall never operate on another case of carcinoma of the cervix, and shall treat them all with radium. I expressed that opinion in conversation with Dr. Crile at the recent meeting of the Kentucky and Tennessee Section of the American College of Surgeons, asking what his opinion of it was and what they were doing now with radium in the Cleveland clinic, and his answer was that they had pur-

chased a supply of radium and were using it, that they would operate on no more cases of cancer of the cervix, of the mouth, of the tongue or tonsil, that radium was the only treatment.

We have operated on several patients for malignancy of the tonsil, and none of them so far as I can recall have remained permanently well, that is they have not remained cured, all of them having died with recurrences. We have treated two cases of sarcoma of the tonsil with radium, but I do not know whether the patients are alive or not, both were treated over two years ago. However, the results were most striking, and I believe radium is the agent to be used in such cases.

I am a little afraid of the roentgen-ray when used in malignancy before operation is performed. The changes which are produced in the blood, etc., lead me to fear its use as a pre-operative measure in malignancy. This does not apply so much to sarcoma as to carcinoma for obvious reasons.

I presume the roentgenologist mentioned by Dr. Dabney, if he is doing much work along this line, has both the roentgen-ray and radium at hand, and if this is true I think he certainly should use radium in preference to the roentgen-ray. It is rather dangerous to send these patients to a man who has only one means of treatment. I do not mean to reflect upon the ability of anyone, but if a man has only one means of treatment he is likely to use that means in every case. I think by all means Dr. Dabney's patient should be treated with radium.

John Walker Moore: In a case such as Dr. Dabney has reported, viz., lymphosarcoma of the tonsil, which we know may rapidly extend to different portions of the body, it would seem that fact in itself should settle the line of treatment to be pursued. If there is reason to suspect metastasis into the mediastinum probably the roentgen-ray would be the agent to use, and probably radium locally would be of benefit. Lymphosarcoma involving the tonsil generally metastasizes rapidly, and when metastasis occurs in the mediastinum it is often impossible to radiate all the areas involved and treatment will have no permanent effect. However, roentgen-ray therapy will usually relieve the symptoms for a time.

Owsley Grant: Dr. Corbus, of Chicago, has recently reported quite a large number of vesical tumors successfully treated by means of diathermy. In many of his cases there was extensive involvement of the inguinal glands. I have wondered if this method might not be applicable to malignancy of the tonsil. Corbus has secured such splendid results with diathermy

*Clinical report before the Louisville Medico-Chirurgical Society.

that he uses it constantly in the treatment of tumors of the urinary bladder.

William J. Young: As I understand it, the point which Dr. Dabney desires to have clarified is whether radium or the roentgen-ray should be used in the case he has reported. Of course we know there are places to use the roentgen ray and others where radium is preferable. It seems to me we should use a certain amount of common sense in selecting the agent to be used in radiation. In malignant disease of the tonsil is it perfectly good common sense to suppose we can place a needle or tube of radium in direct contact with the tonsil or the area to be radiated, whereas if we select the roentgen-ray we have to filter the rays through the skin, fascia, etc., to get to the tonsil. Radium is certainly the method of choice in carcinoma or sarcoma of the tonsil, and our work has proven that we get better results with this agent than anything else. Some wonderful results have been secured with radium in malignant disease of the tongue and tonsil.

Dr. Frank referred to carcinoma of the cervix. The same thing holds true of the cervix as of the tonsil; in the cervix we can place radium in direct contact with the area to be radiated and it is far preferable to the roentgen-ray. However, we find it desirable to reinforce our work in some of these cases by using deep roentgen therapy. To be successful with this we must know what we are doing; and I am free to confess at the present moment, and I have done some of that work, so far as deep voltage is concerned we are still in the experimental stage. One of the difficulties has been that, when we adopted this high voltage method, we accepted the German technique; and I recall that Dr. Frank made the statement before the Jefferson County Medical Society that the drastic technique used by the Germans could not be employed in this country because people would not submit to it. I took exception to his statement at that time. I am very glad now to withdraw what I said as Dr. Frank was right. During the last four or five months I have changed my technique, in filtration and time of treatment, and am getting very much better results. I am not now subjecting my patients to the debilitating methods which Dr. Frank mentioned, and am very glad now to confess that he was right and I was wrong.

There has been considerable criticism on the deep voltage therapy during the last few months. I think such criticisms should be condemned by everybody because we are using a method which is new to us, and our results thus far with this deep voltage are certainly much better than with the old X-ray treatment as we used it. We are trying to improve our technique and when this has been perfected our results from deep voltage will be better.

If you will pardon me for digressing I would like to speak of another feature. In different operations for cancer, especially cancer of the breast, the technique has been changed by surgeons time and time again, and today they have gone as far as they can perhaps with the technique. I want to call attention to the fact that deep roentgen-ray technique is quite young and we are sure to make a few mistakes, but I think we should give X-ray therapists a chance. Even if we make a few mistakes we are only doing what the surgeon has done before us and we may be able to show better results in the end. In any event we should be allowed to show just what we can do.

L. W. Frank: Dr. L. Frank and myself have treated two patients with sarcoma of the tonsil; in both the diagnosis was confirmed by the pathologist; the chief symptoms were difficulty in respiration and deglutition. One patient ten days after the use of radium was breathing much easier. There were enlarged glands in both sides of the neck, which under radium applied internally and externally promptly returned to normal size. The patient died of internal metastasis a year later. The other patient had mediastinal metastasis and died within a few months. Sarcoma of the tonsil metastasize not only through the blood stream but also through the lymph stream.

Some surgeons use the electric cautery in removing pieces of suspected malignant tissue for microscopic examination. It is easily handled and perfectly safe. As cautery seals the blood vessels as the tissues are divided I do not see any reason why it should not be perfectly safe.

Louis Frank: In both the cases of sarcoma of the tonsil which we saw section had been removed before the patients came under our observation and the diagnosis made. We do not believe that any tissue should be removed for microscopic diagnosis excepting by means of the actual cautery. I would further say that clinical experience is in most cases sufficient to enable one to make the diagnosis. When it comes to confirming the clinical findings, this can be done after the growth is removed; or if radium is to be used a section of the growth may be removed for examination in which event the actual cautery should be used.

I would like to correct one statement made by Dr. Young: Since cancer of the breast was demonstrated not to be a local disease the operative technique has changed very little. Certainly since Willy Meyer and Halstead advocated thorough removal of the axillary lymph glands there has been little change in the technique of the operation.

S. G. Dabney (closing): In the case reported I would not have been able to make the diagnosis based on the naked eye appearance of the growth. I was a little uncertain about its being malignant but the growth looked suspicious. It is the first lymphosarcoma of the tonsil I have ever seen.

I am confident the roentgenologist is using the powerful high voltage method in treating this patient. I asked what his preference would be between radium and the roentgen-ray, and he said he preferred the latter.

In regard to Dr. Grant's question: I have had no personal experience with diathermy. Cases requiring treatment with radium, diathermy, high voltage, X-ray, etc., are referred to specialists in that line of work. McKenzie, of London, in his book which appeared in 1922, is very enthusiastic about diathermy. He thinks in certain forms of malignant growths it is far ahead of anything else.

MULTIPLE URINARY CALCULI.*

By IRVIN ABELL, Louisville.

Calculi in the urinary tract vary in size from a few grains to one pound and in number from one to many. In from 10 per cent to 15 per cent of all cases multiple calculi occupy two or more organs of the urinary system: of 118 patients with urinary calculi coming under my observation 12, or 10 per cent presented this distribution. The following case has been selected for report because it offers several points of interest:

1. The multiplicity and distribution of calculi, one in pelvic portion of right ureter, one branched stone in pelvis and two smaller ones in inferior calyx of left kidney.

2. The long duration of symptoms referable to calculus in ureter, its unusual size and the large hydro-ureter and hydronephrosis directly traceable to the obstruction caused by it.

3. The destruction of renal function incidental to bilateral nephrolithiasis, its underlying cause and associated infection.

R. B. L. G., male, white, aged 33, first seen February 8, 1923. Family history negative; father, mother, two sisters and two brothers living and well. Personal history: with the exception of diseases of childhood he had no illness other than the complaint for which he sought relief. As far backward as he was able to remember he had had attacks of colic referable to right renal region; these were sudden in onset, accompanied by nausea and vomiting and frequently required opiates for relief: duration of attacks from

one hour to two weeks: had no chills but slight fever in the course of the longer ones: attacks were accompanied by frequency of urination and hematuria was often noted. Between the ages of 10 and 27 attacks averaged one per month, and later one per year: six months before coming under observation he experienced an acute attack following which pain of lesser degree was intermittently noted, and during which time he passed spontaneously ten or twelve small calculi.

Examination: Heart—apex normal, negative for murmurs, rate 90, Blood pressure 126-80. Lungs, negative. Teeth, tonsils and thyroid, negative. Pupils and knee jerks, active. Abdomen negative, no enlargement or tenderness in region of either kidney or ureter. Urinalysis: specific gravity 1011, acidity 32, one plus albumin, no sugar, acetone, phosphates or casts, round epithelium, many blood and pus cells, no uric acid, uratic or oxalic crystals. Blood showed hemoglobin of 90, red blood cells 4,720,000, color index 0.9 and white cells 7,100.

X-ray examination showed large calculus in lower right ureter, a large branched calculus in pelvis of left kidney and smaller ones in its inferior calyx.

February 10, 1923—Ureteral calculus removed through gridiron incision, right lower quadrant of abdomen: peritoneum was stripped for pelvic wall and pushed inward until ureter was exposed and incised sufficiently to permit of extraction of calculus: incision in ureter closed with catgut sutures and a small rubber tissue drain anchored at this point as wound was closed. Calculus was ovoid in shape, measuring 1—5.8 inches in its long, and 1 inch in its transverse, diameter; weight 24.1 grams.

February 22, 1923. Hockey stick incision, left lumbar region: kidney exposed and delivered: large branched stone removed from pelvis and two smaller ones from inferior calyx through incision along lower half convex border of kidney. Wound in kidney closed with catgut, the pelvis being drained with rubber tube. Renal tissue appeared firmer than normal and with its extensive calculous formation presented rather advanced disease: the presence of a right hydronephrosis due to a long existing calculus prohibited the thought of its removal: a section of its parenchyma removed for microscopic examination showed sclerosis and chronic inflammation. The wound in ureter healed without leakage or infection; the nephrectomy wound showed infection along the drainage tract, keeping patient in hospital thirty days following second operation, and

*Read before the Jefferson County Medical Society.

discharging urine for some days longer, when it healed. During his convalescence urine showed continuously albumin, blood, pus and occasional granular casts. Upon going home patient was instructed to take forty to fifty grains of urotropin daily from time to time and to report the urinary findings. Pus decreased but never disappeared, each analysis showing in addition a moderate number of red blood cells. Shortly after going home patient experienced sharp pain in region of right kidney and ureter at intervals of seven to twelve days over a period of two months and with some of these had fever as high as 102½ degrees F.

Patient was seen again January 16, 1924. Urine showed specific gravity 1010, acidity 40, one plus albumin, no casts, no red cells, 80 to 120 pus cells to one-sixth field, many calcium oxalate crystals and loaded with bacteria. X-ray of urinary tract was negative for recurrence of calculi. Upon cystoscopy and ureteral catheterization a stricture was encountered in right ureter 10 c.m., from vesical orifice; a No. 5 catheter was finally gotten through; a No. 6 catheter readily entered pelvis of left kidney. Right kidney urine showed both blood and pus cells, no crystals; left kidney urine showed blood cells, no pus cells, many calcium oxalate crystals. Phthalein output not sufficient for accurate estimation. Uretero-pyelogram right side showed stricture of ureter at site of lodgment of calculus with very large hydro-ureter and hydronephrosis. Up to time of this examination patient had shown no uremic symptoms; these were manifest in the course of a few hours and continued for the twenty days he remained in the hospital. The combined phthalein output continued but a trace. On January 31st, 12 days after cystoscopy, his blood chemistry showed 80 mgms., of urea nitrogen, 120 mgms., of non-protein nitrogen and 11.25 mgms., creatinine. Symptoms consisted of nausea, vomiting, anorexia, singultus, headache, sleeplessness, scanty urine, temperature varying from 96 degrees to 99 degrees F., pulse from 72 to 116. Patient returned to his home February 8th where he died shortly after with continued evidence of renal insufficiency.

It is obvious that the pyelography and cystoscopy precipitated the uremia in kidneys, the efficiency of which had been greatly impaired by long standing disease; it is also clear that those cases in which we have reason to believe or suspect marked impairment of renal function to be present, should have a phthalein functional test before subjecting them to such examination.

DISCUSSION

D. Y. Keith, Louisville: Dr. Abell has presented some very interesting information. In two of the pictures shown he mentioned that the diagnosis of cholelithiasis had been made. With the present perfection of roentgen-ray methods such errors should be avoidable. In the lantern slides the calculi may closely resemble gall stones, but this may have been untrue in the original film. Such errors can usually be eliminated by making lateral or stereoscopic plates. In the lateral plate renal calculi can always be distinguished from choleliths as the shadows of the latter are in the front part of the abdomen, while ureteral calculi will appear in the shadow of the bodies of the upper lumbar spine.

It is interesting to note the number of patients who come to the X-ray laboratory with renal calculi who have had other operations performed. I can recall having seen only two who had renal calculi and had been operated upon for gall bladder disease; but have seen any number who had renal calculi and had been operated upon for appendicitis. In some of these the surgeons could not be criticized because the X-ray examinations were negative. The reason was that X-ray examination was made over site of pain, the entire genito-urinary tract not being rayed. I recall one or two in which pain was on one side and the renal calculus was on the other.

Simrall Anderson, Louisville: An interesting case was referred to me by Dr. George F. Simpson. The patient had a calculus in the lower portion of the pelvic ureter which was easily palpated and removed through a small vaginal incision. I was much surprised how easily it was accomplished.

I would like to ask Dr. Abell if he has used this method in such cases. However, I should add this patient had an extensively lacerated perineum which was repaired.

Irvin Abell, Louisville, (Closing): Referring to the question asked by Dr. Anderson: We have had three cases of vesical calculus in rather aged women in all of whom the calculi were removed by incision through the vagina into the base of the vesical cavity, the vesical wound being closed around a Pezzer catheter and healing occurred without leakage.

I have seen one calculus in the pelvic portion of the ureter in a female, which was removed through the vagina; but this woman presented a condition which made this easy in that she had a complete prolapse of the uterus. We performed the Mayo type of vaginal hysterectomy. After removing the uterus, with the broad ligaments protruding into the vagina, the

calculus could be delivered almost externally. The ureter was incised and the calculus easily removed, and healing occurred without any leakage whatever. This is the only ureteral calculus I have removed in that way.

IN MEMORIAM

Whereas: God in His infinite wisdom has taken from our County and State Medical Society, our beloved friend and co-worker, W. W. Richmond of Clinton, Ky.

Dr. Richmond was one of Nature's noblemen who with a winning personality and a generous spirit won the heart of every one who knew him, he was one of the founders and organizers of the State Board of Health and State Medical Society of which he was a faithful attendant and worker until the day of his death. He was the councilor for the Western District and a delegate to the A. M. A. for last quarter of a century.

Therefore be it resolved by the Medical Profession of the State of Kentucky at large, We realize the sad loss of a true friend, our Society a guarding councilor and the Board of Health a wise faithful servant and advisor, and that we as members of The Kentucky State Medical Association whom he so much honored express our love and affection for his association, as he mingled from year to year at the meetings of the Society. Championed every movement of the Society he love so dearly. Ready to fight relentlessly for every cause that would save life and protect health.

Be it further resolved that we commend his genial spirit to God who gave it; To his family we extend our condolence and sympathy, and that these resolutions be spread upon minutes of this Society and the State Board of Health and a copy sent to his bereaved family.

Committee

H. H. HUNT
H. P. SLIGHT
W. R. MOSS

NEWS ITEMS

Dr. Curran Pope, proprietor of Pope's sanatorium in Louisville and author of numerous medical papers, has been appointed by Governor Fields as a member of the State Board of Charities and Corrections for four years to succeed Robert H. Winn, Winchester, resigned, according to a Frankfort dispatch.

For many years Dr. Pope has been a member of the faculty at the University of Louisville and for twenty five years he has been consulting neurologist and lecturer at the City Hospital.

He served as president of the Ohio Valley Medical and American Physiotherapeutics Association, and is a member of numerous medical societies. He is associate editor of the American Journal of Physiotherapy and Radiology, New York, Indianapolis Medical Journal and Archives of Hydrology, London, England.

Dr. Pope was born in Louisville and was graduated from the Medical School of the University of Louisville. He also studied in New York, London, Paris, Vienna and Berlin. He was resident physician for a year at the Central State Hospital.

At a meeting of the American College of Radiology and Physiotherapy held at the Sherman Hotel, in Chicago, November 12th, 13th and 14th, Dr. Curran Pope, of Louisville, Ky., presided during the meeting owing to the inability of the President, Dr. Burton B. Grover, of Colorado Springs, Colorado to preside. On the last day of the meeting Dr. Curran Pope was unanimously elected President of this College. The meeting was largely attended and many interesting papers were read and discussed.

The laboratory which has been maintained in connection with the Health Department, will after the first of the year be run as a commercial laboratory by Karn & Carpenter under the firm name of the Owensboro Laboratory Co., which will be incorporated in the near future. The Red Cross is no longer able to pay the salary of the technician. This will be borne by the operating firm. The headquarters will remain in the Karn & Carpenter building as at present.

The physicians are quite in favor of continuing the laboratory. A reasonable fee for the service rendered will be made to physicians and patients. Mrs. Bessie Keeney, present technician, will continue in this capacity.

Dr. Irvin Abell was elected to the presidency of the Southern Surgical Association at Charleston, S. C.

Dr. Abell is the fourth Louisville surgeon to be so honored by the organization, which has a membership limited to 200. Louisville was selected as the place for the 1925 convention. Dr. Louis Frank, also of Louisville, was made chairman of the committee for arrangements.

Dr. A. C. Kolb, of Port Arthur, Texas, who graduated at the University of Louisville, School of Medicine, in the class of 1917, has returned to Louisville, and acquired an interest in the Louisville Neuropathic Sanatorium at 1412 S. Sixth St., and will from the first of the year be associated with Dr. W. E. Gardner and Dr. W. E. Render in the operation and management of this institution which is very well and fav-

orably known to the medical profession of this state.

Dr. Kolb spent a year as interne at this institution about the time he graduated in medicine, at which time he became pretty well grounded in the fundamentals of Neuro-Psychiatry, and later had experience in the Neuro-Psychiatric department of the Medical Corps of the United States Army of which he was a member during the late war, and had the rank of First Lieutenant. Dr. Kolb is a very well known by many of the younger physicians of the state who graduated in medicine about the time he did as well as having a personal acquaintance with most of the physicians in the city of Louisville, and his becoming a member of the staff of the Louisville Neuropathic Sanatorium should be a distinct advantage to this institution.

Dr. John Risk Meek, chief of staff of the Booth Memorial Hospital, Covington, died as the result of injuries when his automobile crashed into a street car. Witnesses said Dr. Meek was driving slowly when his automobile skidded on the wet pavement.

The Lincoln County Memorial Hospital dedicated to our dead Soldiers of the Great World War, has been established at Stanford with 2000 members in the Hospital Association.

The following article has been approved by the Council on Pharmacy Chemistry.

Battle Creek Food Company

Lacto-Dextrin

Eli Lilly and Company

Pituitary Extract-Lilly (Obstetrical)

Pituitary Extract-Lilly (Obstetrical), 0.5 Cc.

Pituitary Extract-Lilly (Obstetrical), 1 Cc.

Pituitary Extract-Lilly (Surgical)

Pituitary Extract-Lilly (Surgical), 1Cc.

Medical Laboratories, Inc.

Culture Bacillus Acidophilus-Medical Laboratories, Inc.

Merek and Company

Parbital-Merek

Barbital Sodium-Merek

Carbon Tetrachloride-Merek Highest Purity

"C. P."

H. K. Mulford Company

Cargentos Capsules, 3 grains

Cargentos Ointment, 5 per cent

Diphtheria Toxin-Antitoxin Mixture New

Formula (Park Banzhaf's O. 1 L Dose)—

Mulford.

Nutrivoid Diabetic Flour Company

Nutrivoid Flour

Parke, Davis and Company

Antidysenteric Serum—P. D. and Co., 20 Cc.

Syringe

Powers-Weightman-Rosengarten Company

Quinine Ethyl Carbonate—P. W. R.

RESOLUTIONS.

At the regular meeting of the Logan County Medical Society, on December the first, 1924, the following resolutions were introduced and carried by an unanimous vote, eleven of our eighteen members voting on the resolutions:

Whereas; It seems to be the desire of some of the members of the Kentucky Medical Association to increase our membership dues to ten dollars (\$10.00) a year instead of five dollars (\$5.00) as here-to-fore;

Be it resolved; That, we are against any increase in membership dues, and deplore its introduction at this time. We are passing through one of the most strenuous times that has ever confronted the people of our State and Nation. Spending money has taken on a form of madness. You find it in our National Government, in our State Government, in our Municipalities. Bonds, bonds everywhere and for everything; debts being incurred far beyond the power of the growing generation to meet, so we are handing them down to our posterity to take care of. And on top of all this, comes this suggestion from the State Medical Association.

Let us rather blaze the way, that others seeing our good works may follow after. Try to economize, cut down expenses, live within our incomes. What need have we of gold plated bangles at our annual meetings? Go back to the other days of ribbon badges. Stop having pictures made of our honored Presidents to be relegated to the waste baskets. Let the small politician and candidates for petty offices monopolize that branch. Stop paying traveling expenses for our honored officials. Stop furnishing high priced stationery to honored officials. Stop paying a costly stenographer to attend our meetings and take down words that will be treasured anyway if of sufficient importance and worth. Eliminate the Medico-Legal Committee, which costs us five thousands a year and is increasing every year.

And be it further resolved; That, in our humble opinion, the state meetings ought to be held annually in the City of Louisville. And we do not expect our brothers there to go to any expense to entertain us, socially or otherwise. We believe it would lessen the cost of our annual meeting and would entail hardships on none.

Walter Byrross

W. R. Burr

Committee.

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NEXT ANNUAL MEETING—OWENSBORO, 1925

COUNTY SOCIETY REPORTS

BOYD: After a two months summer vacation, the Boyd County Medical Society resumed activities. On Thursday evening, October the 14th, the society met at the Ventura Hotel for its meeting.

Following a "steak" dinner, we had the great pleasure of listening to Virgil Simpson of Louisville discuss, "The Diagnosis of Thyroid Gland Disturbances."

The discussion was of real practical application and most stimulating to all present.

There were 40 members present.

BULLITT: A meeting of the Bullitt County Medical Society was held in the office of S. H. Ridgeway at Shepherdsville. The meeting was called to order by the President, Geo. Kirk. T. E. Craig was appointed temporary Secretary in the absence of R. L. Hackworth the regular Secretary. Officers were then elected as follows, Geo. Kirk, President, W. W. Hill, Vice-President, Thos. E. Craig, secretary, W. S. Napper, Delegate, Thos. E. Craig, Alt.

J. Cook of Belmont being super-annuated was made an honorary member of the County Society with recommendation to the State Society that the same honor be accorded him by it. We were sorry to note the absence of R. I. Kerr on account of an infected limb and hope he will soon be out.

A very enjoyable time was had in an informal round table discussion of professional topics and the meeting adjourned with a motion to have our next meeting in January.

FRANKLIN: At the regular monthly meeting held at the Capital Hotel, Monday Sept. 8th, Noon, presided over by the president, Dr. C. T. Coleman there was present the following—Drs. Minish, Coleman, Jackson, Garrett, Youmans, Patterson, Coblin, Stewart, Budd, Mastin.

L. T. Minish, gave a talk on the Administration of Insulin in Diabetes with report of 3 cases.

Jno Patterson spoke on its usefulness from a surgical standpoint. The amount of discussion following testified to the interest all felt in the subject.

The secretary was instructed to communicate with Col. L. M. Maus of the Intelligence Bureau, Hot Springs, Ark., and ask him to prepare a paper in the near future to be read before the Society relative to the uses and virtues of the waters of Hot Springs in treatment of diseases.

A letter from the family of the late Dr. W. B. Dawson was read, thanking the Society for flowers and sympathy expressed upon the death

of the doctor which occurred Sept. 7th-24.

A committee was appointed by the president, composed of Drs. Budd, Minish and Mastin to prepare suitable resolutions to be spread upon the minutes of the Society and a copy sent to the family.

The Committee reported the following which was adopted—

It is with deep regret that the Franklin County Medical Society records the death of Dr. W. B. Dawson, one of its oldest members, who until a few years ago when he had to retire on account of ill health, was always present at the meetings, taking an active part and willing to give of his great experience. He was a man of action, unique in personality, outstanding in mental vigor, never content to follow but always seeking to lead and do and always kind and sympathetic. We feel a personal loss in his death. Therefore be it

Resolved, that the Franklin County Medical Society hereby record this expression of its sorrow in the death of Dr. Dawson and extends to his family its deepest sympathy in this great loss and bereavement.

G. A. BUDD
L. T. MINISH
F. W. MASTIN

HARDIN: The regular meeting of the Hardin County Medical Society met at the Brown-Pusey House, Thursday, Nov. 13, 1924.

The following members were present: J. M. English, Vice President in the chair, C. C. Carroll, White Mills, C. W. Rogers, Rineyville, H. R. Nusz, Cecilia, J. C. Mobley, W. F. Alvey, D. E. McClure, Elizabethtown.

This being the day for the annual election, the following were elected and installed: J. M. English, President, C. C. Carroll, Vice President, D. E. McClure, Sec.-Treas., H. R. Nusz, Delegate C. W. Rogers, Alternate, J. C. Mobley, Censor. The board of censors for the following year is J. M. English, C. W. Rogers, J. C. Mobley.

The proposition of increasing the State dues was taken under consideration.

After discussion, the Board of Censors was instructed to investigate and report on charges of irregular practice among its members and if any is found to take the matter up and to try to rid the profession of any unnecessary risk that might be incurred in carrying such member or members on its membership.

The meeting adjourned at 3:00 p. m. after many profitable reports and discussions.

THIRD DISTRICT: The third meeting of the Third District Medical Society was held in Glasgow on August 27th with Dr. Turner in the chair.

J. B. Helm reported a case of Priapism which was discussed by several of the men.

C. C. Turner reported a case of recurring Pleuritic Fluid in a case of chronic Typhoid Phthisis, which also elicited considerable discussion.

The Program which was presented consisted of "Epidemiology of Typhoid Fever" by C. A. Calvert, Scottsville, "A Typical Pneumonias" by E. L. Palmore, Hiseville, and "The Use of the Intra-Medullary Dowel Pin in the Treatment of Fractures" by G. A. Hendon, Louisville.

The meeting adjourned to meet in Bowling Green on Nov. 5th at which time the guest of honor will be W. D. Haggard, President Elect of the American Medical Association, who will deliver an address to the Society.

THIRD DISTRICT: The Third District Medical Society met with Warren County Medical Society in the Assembly Room of the Helm Hotel, Wednesday, November 5th.

B. S. Rutherford reported two cases of valvular heart lesions, showing the effect of medication in restoration of functioning after breaking compensation. He also presented two clinical cases, valvular lesion, with marked murmurs. Dr. J. H. Blackburn presented two cases of epithelioma, one on the margin of the ear and the other on the arm just above the fold of elbow.

B. S. Rutherford read a paper on "The Mechanism of the Heart's Action," presenting the result of the most modern research of the physiology of the heart and its movements.

A. D. Donnelly read a paper on "The Early Recognition and Treatment of Syphilis," which was discussed by Doctors Reardon, Neel, Woodard, Fitch and stone.

W. D. Haggard, Nashville, Tenn., President-Elect of American Medical Association, during the morning delivered addresses before Western Teachers College and Bowling Green Business University. He was the guest of the Rotary Club at the weekly luncheon at the Helm Hotel, and delivered an address on Public Health.

The doctors of The Third District Medical Society attended this luncheon but followed their usual custom, "Pay-As-You-Go."

At the afternoon session of The Third District Medical Society the principal address of the meeting was delivered by Dr. Haggard, who discussed some phases of Gall-Bladder Diseases, which was illustrated by a large series of stereopticon views.



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KENTUCKY MEDICAL JOURNAL



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EDITORIAL

ABOUT THE DUES.

More members of more county societies have sent in their dues by January 10, 1925 than ever before in the history of the State Association. This indicates a healthy appreciation of the value of membership. Membership in the Kentucky State Medical Association is of value to its members.

The JOURNAL costs more than the entire receipts from dues, the balance being paid by our advertisers. There are many other benefits from the State membership alone but after all the important part of medical membership is the county society. If every county society is not active, get busy and make it so. There are some excellent societies in the State with as few as five members with regular attendance who haven't missed a meeting in months. Every one of these men is a better doctor because he has attended such a society. If you are not attending your society meetings you are the loser.

If you have not paid your dues for 1925, please send them to your county secretary the moment you finish reading this editorial.

THE LOGAN COUNTY RESOLUTIONS

At its last meeting the Logan County Medical Society, as representative a body of physicians as exists in Kentucky, adopted some very important resolutions. Their suggestions are commended to the attention of other societies with view to their careful consideration by the House of Delegates at Owensboro. These resolutions are signed by Drs. Walter Byrne and W. R. Burr, who have represented the Society many times as delegates and who are thoroughly cognizant of the affairs of the Association.

The first suggestion is that we cut out the gold-plated bangles and go back to the days of ribbon badges. The suggestion is hardly practical on the ground of economy as the ribbon badges cost more than gold-plated bangles. Economy was but one of the reasons that warranted the House of Delegates in the selection of the bangles. It was the main

idea that the button as a badge of membership would be worn through the year as is done by most other live organizations and that the bangles at the annual meetings would indicate and be a reward to those who had been continuous in attendance.

The next suggestion is that we stop having pictures made of the presidents. This custom was begun in 1907 with the approval of the House of Delegates and of course may be discontinued at any time by it.

The next suggestion is much more radical. It is to stop paying traveling expenses for the officials. This would mean that the Councilors and members of committees who give so much valuable time to the profession would, also, be required to pay their own traveling expenses. This is not done in any other state and we do not believe it should be in Kentucky. It has been estimated by the American Medical Association that it costs a councilor, who performs his duty, an average of \$100 a month in loss of time away from his office and practice. We cannot believe that the profession would be willing to ask such men as compose our Council or our active committees to pay their own traveling expenses.

The next suggestion is of a similar nature and that we should stop providing stationery. Letter heads are essential to modern business organizations. We cannot believe that this suggestion has any merit.

It is next suggested that we stop paying a stenographer to attend our meetings. This would be the equivalent of doing away with the JOURNAL. Since its third meeting in 1863 the Association has had a reporter take down its proceedings and has published them. There is not a scientific organization in the country which does not do this. It is to be remembered that only one-third of our membership attends the meeting and the other two-thirds are as much entitled to the discussions on the floor and to the proceedings of the House of Delegates as those in attendance.

It is next suggested that the Medico-Legal Committee be abolished on account of its cost. Of course this is a matter of policy for the Association to determine. The Medico-Legal Committee has performed excellent

service. It has received an annual vote of confidence and commendation from the House of Delegates. We recall one hotly contested malpractice suit in Logan County in the old days before it was created that cost a very distinguished physician involved probably half as much as the average annual expense of this committee. Numerous similar cases in other counties might be cited and this was one of the reasons for the organization of this activity. The other and most important one was that malpractice defense is a specialty in law and that at the time of the organization of this committee there was not a single decision of our Court of Appeals which was not adverse to the medical profession. Since its organization and the conduct of our malpractice defense under the general supervision of Honorable Fred Forcht we have not had an adverse decision in principle and have regained much of the lost ground of previous years. Had the committee accomplished no other thing than changing the time in which malpractice suits can be brought from five years to one, it would have been worth all the money that has been expended on it.

These suggestions coming from the honored source which originated them merit the serious consideration of the House of Delegates and of the county societies which have entire control over all the matters involved. It is a healthful sign when such men as Dr. Byrne and Dr. Burr are giving serious consideration to the detailed business affairs of the Association.

DR. OSCAR C. DILLY.

Dr. Oscar C. Dilly died at his home in Louisville on January 3rd after an illness of eight weeks.

Dr. Dilly was 58 years of age, was dean of the Louisville College of Pharmacy, former superintendent of the City Hospital and at one time was professor of materia medica in the Kentucky School of Medicine. Dr. Dilly had been president of the Kentucky Pharmaceutical Association and the Louisville Association of Retail Druggists. He has been one of the leading members of the American Pharmaceutical Association since 1886. Dr. Dilly was the first member of the State Board of Health appointed under the amendment to the law in 1918 to represent the State Pharmaceutical Association. He was a tower of strength to this Board. He had infinite capacity for attention to details; was an excellent executive and accomplished as much in welding the kindred professions of medicine and pharmacy as any other man with whom we

are acquainted. This was, indeed, his career. He was a pharmacist of the old school and, at the same time, a modern physician. He believed in the dignity of the pharmacist.

The medical profession will join with the people of Kentucky generally in mourning the passage of this good citizen.

ORIGINAL ARTICLES

IDIOPATHIC PURPURA HEMORRHAGICA—WITH REPORT OF CASE CURED BY SPLENECTOMY.*

By MORRIS FLEXNER, Louisville.

While the object of this paper is to discuss one particular variety of the group of diseases known as the purpuras, it will be beneficial, perhaps, to touch lightly on the other members, so as to definitely classify this particular one. Dr. Osler referred to purpura 15 years ago as "that obscure and interesting manifestation of which we know so much and at the same time so little". After 15 years we may add that we know more about it, but must admit that there are phases of the subject about which we still know "so little".

In 1731 Werlhoff first described a case of purpura, and attempted to separate it from other hemorrhagic diseases. Because of this description, idiopathic purpura is often called "Werlhoff's Disease".

Within the last 3 years extensive work has been done on the subject in this country. Brill and Rosenthal of Mount Sinai have been pioneers in calling the attention of the profession to the frequent occurrence of the disease and to the curative method of splenectomy. They have termed it "essential thrombocytopenic purpura hemorrhagica" because of the decrease or absence of blood platelets, which are also called thrombocytes. I shall quote their classification of the purpuras verbatim because it is the best and most comprehensive that I have encountered.

A. In the first group, the thrombocytopenic belong:

1. The bacterial infections, such as streptococcus, staphylococcus, pneumococcus, meningococcus.

(a) Infections in which no bacteria has been found, e. g. smallpox, measles.

2. Diseases of the hemopoietic organs; leukemia, aplastic anemia, pernicious anemia, splenomegalic cirrhoses including the Banti syndrome and Gaucher's disease.

*Read before the Kentucky State Medical Association, Louisville, September 22-25, 1924.

3. Poisons:

(a) Biochemical, e.g., Heterologous sera, snake venom.

(b) Organic, e.g., turpentine, balsams, etc.

(c) Inorganic-metallic poisons, as arsenic, iodine.

4. Nutritive disturbances, from vitamin deprivation; e.g., rickets. (Scurvy is an exception, showing no platelet formation.)

5. Senile purpura.

B. The non-thrombocytopenic group; the causes for hemorrhages in this group are various, residing in the capillaries and in the other constituents of the blood.

1. Hemophilia.

2. Cholemia.

3. Arthritis—such as Schonlein's disease or peliosis rheumatica.

4. Henoch's purpura or purpura abdominalis.

5. Hypertensive vascular states, e.g., arteriosclerotic purpura usually associated with nitrogen retention and other evidence of disturbed renal function.

6. Congenital; sometimes inherited vulnerability of the capillaries, in which ecchymosis of the skin occurs with the slightest bruise or trauma, and in which case petechiae arise in the lower extremities on prolonged standing (static purpura). In such cases the application of a tourniquet or of the inflated cuff of a blood pressure apparatus may call forth these petechiae when applied to an upper extremity.

7. Some diseases of the nervous system including the uncommon stigmata, such as blood sweating and purpuric spots, occurring in hysteria.

8. Evolutional changes occurring in women immediately before and during the menopause. But the disease to which I refer and in which Brill and Rosenthal are interested does not belong in this classification. First I wish to emphasize the danger of the disease and venture the opinion that few, if any, severe cases have ever recovered who have not had their spleens removed. In the last three years, I personally, have seen two patients die, one a boy of twenty, the other a woman in her forties. All the hemostatics that are commonly used do no good and these include transfusion, calcium, the various thromboplastic substances, horse serum, etc. The clinical characteristics are fairly uniform. The disease is common in childhood or youth but may occur in adults. Hemorrhage is the predominating feature. It may

occur as petechia, purpuric spots or large ecchymoses scattered in the skin over the body or beneath mucous membranes. The mouth is usually affected and hemorrhage from the gums or cheeks or pharynx occurs. Frequently epistaxis is present, and rarely bleeding from the stomach, intestines and kidneys. In girls menorrhagia is not uncommon. Bleeding is secondary to the slightest trauma, indicative of the extreme delicacy of the capillaries. Hess has shown that a tourniquet applied to the upper arm produces a shower of petechiae in five minutes. The bleeding may be a constant affair or may occur for a few hours a day; to check itself for some unexplained reason and then to recur. Finally, unless something is done to relieve the condition, the patient dies almost exsanguinated. The disease may be fatal in 2 or 3 days or it may last a few weeks before death occurs, or rarely, may clear up, the recovery as little understood as the attack itself. Subacute or chronic cases are the exception.

It is the examination of the blood that is of the greatest value in making the diagnosis. At the same time, this sheds some light on the underlying pathology. The blood platelets are greatly reduced, as first noted by Hayem or may at times be absent. Normally from 200,000 to 300,000 platelets are found with the average count of 250,000. Here we find any number from none to 40,000 to 50,000. Platelet counts by persons not familiar with the method or not doing many, are not of much value. A search of a smear stained by the Wright method will give a fairly good idea as to the extent of reduction. The role of the blood platelet in normal coagulation is well established. Another important contribution of Hayem concerns the formation and contraction of the blood when allowed to clot. If a few cubic centimeters of normal blood are placed in a small test tube, the surface of the clot becomes concave in 15 minutes; in an hour it has contracted enough to separate from the side of the tube and in 24 hours it is completely surrounded by serum. In this disease blood collected similarly clots, but does not retract and at the end of 24 hours no serum has been expressed. The clotting time or coagulating time however is not affected and come within normal limits, varying with the method of choice. However, the bleeding time or the time before the capillary oozing stops is greatly prolonged. This is best done with a blood lancet, using either the ear or finger and making a fairly deep stab. The tissues are left undisturbed or as some authors advocate the blood is blotted

off with filter paper when a large drop forms. Under no condition must pressure be made on the surrounding parts. The normal bleeding time is from $\frac{1}{2}$ to 3 minutes, while in purpura hemorrhagica it may be from 10 minutes up to $\frac{1}{2}$ hour.

The 4 findings,—namely: 1. A diminished number of platelets. 2. A noncontractile clot. 3. Normal coagulation time; 4. Prolonged bleeding time are the most important blood findings and are practically diagnostic. If a high grade of secondary anemia exists the characteristic changes are frequent. The efforts on the part of the bone marrow to regenerate the failing supply is proportionate to its own nourishment and the stability of the blood formed. Constant labor over a long period with destruction faster than regeneration leads to such a state of bone marrow exhaustion that an aplastic anemia may develop.

Much work, clinical and laboratory has been done in investigating the pathogenesis of the disease and many theories propounded. The researches and conclusions of E. Frank of Breslau and P. Kaznelson of Prague are the most inviting. The observation of J. H. Wright of Boston that blood platelets are formed from the protoplasm of megacaryocytes giant bone marrow cells is generally accepted. Blood platelet reduction in the circulation could occur, either from some effect on the megacaryocytes themselves, affecting production, or occur because of destruction after formation. Frank calls the disease "essential thrombopenia" and believes that the paucity of platelets is due to faulty formation. He thinks this due to a myelotoxic action of the spleen, this organ generating a toxin affecting the bone marrow. He recalls the associated leucopenia and thrombopenia in a series of hypertrophic affections of the spleen,—particularly typhoid fever, kala azar and the so-called "splenic anemias".

Kaznelson does not agree with Frank but believes the purpura is thrombocytolytic due to platelet destruction in the spleen. In histologic examination, he has seen the spleen pulp stuffed with platelets and has found megacaryocytes in the spleen and circulating blood and in fatal cases has found them in the bone marrow. In typhoid fever he believes platelets are more numerous than normal in the spleen pulp. Other evidence in support of the Kaznelson theory is the fact that after removal of the spleen, blood platelet regeneration is rapid, the maximum being reached in 3 to 4 days, which would not likely occur if the bone marrow was severely damaged.

The greatest credit must go to Kaznelson who first suggested and performed splenectomy for this disease over six years ago. That patient is still alive and apparently well, as are many other similarly treated since. Transfusion is usually indicated before or after operation. The type of transfusion is important and the work of Rosenthal and Baehr in this direction should receive prompt recognition. In 1915 Baehr first observed that sodium citrate when given intravenously shortens the coagulation time of the blood,—in contrast to the effect it has in vitro. In this recent experiment they have found that marked reduction in the number of platelets occurs immediately after the citrate injection. With this the coagulation time shortened. Soon in the normal individual the platelet count returns to normal. They believe the platelets are damaged by the citrate and are removed from the circulation by the spleen and other organs and are destroyed, their thromboplastic contents being liberated into the circulation, accounting for the increased coagulability of the blood. Careful observations in one case of idiopathic purpura hemorrhagica confirmed their views. Injection of 4.5 gms., of sodium citrate caused increased bleeding from the gums. The coagulation time gradually increased and the platelets were reduced. The prolongation of the clotting time occurring in this case corresponds with their experimental observation on animals having no platelets. With these observations as well as those in one case of hemophilia, they draw the conclusion that the use of citrated blood in hemorrhagic blood diseases is strictly contraindicated.

After the spleen is removed bleeding from mucous membrane stops, blood platelets begin to increase. Clot retraction does not return immediately, requiring months at times. The bleeding time becomes reduced at once. Red cells and hemoglobin pick up rapidly and the patient gradually regains a normal, healthy appearance. And when this happens, the attending physician feels in a position to dispute the final half of Dr. Osler's statement. One of the best bibliographies of the subject is to be found at the end of an article by Cohen and Lemann in *Surgery, Gynecology and Obstetrics* for May, 1924.

Because of the few case reports published to date, I wish to present the following:

Patient is a white, female, age 15—referred to me by Dr. J. W. Sams of Crestwood, on the 25th of February, 1924, because of her purpura and hemorrhagica.

F. H. entirely negative, coming from good, strong healthy stock.

P. H. General health good—usual diseases of childhood. No serious infectious diseases, no operations. Occasional sore throat,—no coughs. Appetite and digestion good. Periods began at 13 years, not very regular, coming from 19 to 25 days, lasting 4 to 5 days.

P. I. Began about January 20, 1924. At this time, developed severe tonsilitis, headache and fever. Right side of throat much the worse. Cleared up gradually; she returned to school, and on February 3rd, first noticed small bluish red spots on chest. Larger ones appeared on limb and large bruises also. Gums began to bleed, "whole mouthfuls at times." Blood appeared in inner surface of cheeks. Malaise developed and she presented herself for examination on February 25th. The following are the notes made at that time:

P. E. Patient is well developed, well nourished girl, expression good. Says she feels "fairly well". Color fair. Scattered over entire body, especially over neck and on upper chest and over lower legs are petechiae, purplish blue in color, varying in size from pin point to 1 mm in diameter. There are some beneath the conjunctivae and mucous membrane of cheeks and over the soft palate. There are true extravasation of blood in the skin over both knees and one large one in mouth on the right cheek. There is evidence of bleeding from the gums. Menstruation is profuse. The abdomen is full, due partly in gaseous distension. Respiratory movement free. On palpation it was slightly tender throughout. No masses felt. The liver is at the costal margin and on deep inspiration the edge of spleen could be felt, round and soft. Temperature normal, pulse 108; blood pressure 104-60.

The laboratory findings on this day showed: a normal urine and the following blood count:

Hb. (Sahli) 77 per cent; R. B. C. 3,200,000; W. B. C. 6,800; Differential P. M. N. 58 per cent; Lymph, 40 per cent; Bas, 2 per cent.

Red cells showed slight anisocytosis. Coagulation time: (Biffi-Brooks) 2 minutes. Bleeding time 15 minutes.

The girl was taken to Norton Infirmary where a menorrhagia of a serious nature developed, which was controlled poorly by ergot and elevating the foot of the bed. New petechia appeared the next morning, generally distributed. For the next 3 days considerable blood was lost from the uterus. Large clots appeared at times. Her pulse varied from 100 to 120. On 2-28-24 a slight epistaxis occurred and considerable blood

was passed by bowel. Blood count on 2-28-24:

Hb., 60 per cent; R. B. C., 3,040,000; W. B. C., 8,000; Differential P. M. N., 53 per cent; Lymph, 46 per cent; E., 1 per cent.

Because of the progress of the disease and change of her general condition, Drs. Louis and Wallace Frank were called in consultation with the idea of doing a Splenectomy. This was done on February 29th. I quote Dr. Frank's operative report in part:

"Eight in left rectus incision, 3 inch transverse incision, connecting with the middle and extending to the rib margin. The spleen was 4 times the normal size, the top adherent to the dome of the diaphragm. The pedicle was very short. The adhesions were separated, the pedicle clamped and the spleen removed. The pedicle was doubly ligated. There was some slight oozing during the operation. The spleen was sent to the laboratory and Dr. Stuart Graves reported as follows: Gross specimen. Spleen 130 by 90 by 40 mm. Dull red, smooth and flabby with a notch in anterior surface. Cut surface is bright red with scattered pale grey follicles averaging 2 mm in diameter.

Microscopical description: Normal landmarks of follicles and trabeculae and their relation to pulp do not appear abnormal. Blood sinuses not unusual. Under high power the character and relation of lymphoid cells and leucocytes are not remarkable.

On removal the amount of splenic engorgement was striking. After the clamps were taken off, at least 3 ounces of blood flowed from the large veins in the pedicle. The post operative reaction was very severe, the pulse going to 160, of very poor quality. She became nauseated and vomited frequently small amounts of a dark brown fluid. Fever developed for the first time. For 48 hours her condition was critical the pulse being from 140 to 160, but under large doses of digitalis, hypodermatically and pituitrin her condition gradually improved. Fever persisted, reaching 103. Blood count March 3, 1924:

Hb., 40 per cent; R. B. C., 2,330,000; W. B. C., 29,000. Differential count P. M. N. 91 per cent; Lymph, 6 per cent; End. Leuc., 3 per cent.

Platelets very numerous, more than usual. Urinalysis on 3-5-24 negative. A slight cough, few scattered rales with some expectoration appeared. No evidence of consolidation found. On 3-8-24 blood count:

Hb., 40 per cent; R. B. C., 2,350,000; W. B. C., 22,500. Differential P. M. N., 72 per cent; Lymph, 21 per cent; End. Leuc., 7 per cent.

Platelets still increased. Anisocytosis moderate. Many normablasts seen. Achromia moderate. Because of this blood count, the persistent temperature of 100 to 102 and the fact that the patient did not seem to be gaining, a blood transfusion was given. She received 500 cc., of father's citrated blood. There was a slight reaction to this. Blood count 3-11-24, three days after transfusion:

Hb., 55 per cent; R. B. C., 2,850,000; W. B. C., 11,000. Differential P. M. N., 72 per cent; Lymph, 18 per cent; End. Leuc., 8 per cent; Basophiles, 1 per cent.

Poikilocytosis slight,—moderate anisocytosis; normablasts present. She began to pick up slowly. Her diet was pushed and she was given one Frasse's Ferruginous Ampoule, hypodermatically daily. Temperature became normal on 3-18-24. Blood count 23-22-24:

Hb., 70 per cent; R. B. C., 3,620,000; W. B. C., 8,400. Differential P. M. N., 63 per cent; Lymph, 33 per cent; End. Leuc., 2 per cent; Baso., 2 per cent.

Platelets about normal. Slight anisocytosis.

Patient was discharged on 3-23-24 greatly improved, having been up a little for a few days. She returned home and in two weeks later contracted an infectious disease which Dr. Sams felt was scarlet fever. The fever lasted 2 weeks and was followed in a week by desquamation. The fact that she weathered this infection speaks well for her general condition.

She has reported for observation from time to time, has kept well and gradually improved in health. A complete blood study on August 20th, revealed the following:

Hb., 70 per cent; R. B. C., 3,470,000; W. B. C., 6,200. Differential count P. M. N., 68 per cent; Lymph, 20 per cent; End. Leuc., 2 per cent.

Congulation time $2\frac{1}{2}$ minutes. Bleeding time 1-4 minutes. Clot retraction present. Platelets normal.

DISCUSSION

Louis Frank, Louisville: Occupying the position I did in assisting to organize this program, I feel a little hesitancy in discussing any of these papers, but I think this is one of the most important contributions not only from a practical standpoint but from a scientific standpoint that has been made to this Society.

This condition probably has been overlooked, and doubtless a good many individuals have lost their lives simply because the doctor has held his hands and has given maybe internal medication, waiting to see what nature would do.

These cases do not belong to the same class as the usual bleeders. Bleeders are never of the female sex, though the mother transmits the disease to the male offspring of the family. In other words in the Bleeder families the female is skipped. That the case under discussion presents a distinct entity and is a disease of itself there is no question of doubt and in this disease the female may be attacked.

From a diagnostic standpoint the bleeding time is of far greater importance than the coagulation time of the blood.

I arose also to answer one or two things that Dr. Flexner said in connection with the operative part of this particular patient. First, I would call your attention to the fact that in the removal of the spleen you are removing a very enormous amount of blood, and that one may therefore find the operation attended by a tremendous amount of shock, although the mortality in splenectomy under favorable circumstances and with a good corps of assistants and nurses in a well regulated hospital is not high.

In a discussion of this point we can bring up the question of transfusion, which I may say he justly criticized, and probably make an explanation of that. The great point in the performance of any surgical work or in the doing of any surgical treatment with a patient is to anticipate what may happen and for that patient before you undertake your operation to carry out such measures as will overcome any anticipated or supposed or possible thing that may arise afterwards. Therefore, as a rule, we transfuse patients before operation and not after operation, for evident reasons. However, in the removal of the spleen, you take out such a volume of blood that if the patient's hemoglobin and blood count is up to a point where the operation can be stood or it is believed it can be successfully gone through with, then the transfusion had best be postponed until after the spleen has been removed.

The other point which Dr. Flexner made that I want to speak of just a moment is the whole blood transfusion. There is no question but what the whole blood transfusion is by far better than the transfusion of citrated blood. It is a fact that blood transfusion has been so simplified that a great many citrated transfusions are being done, this method being particularly easy and simple, where as a matter of fact, whole blood transfusions should be done. There is no question of a doubt but what the addition of the citrate to the blood does cause changes. In cases of this particular type every element that is in the blood and in the blood cell itself is necessary to be given to the patient, and yet men so often, because it is simple and easy, use citrated blood transfusions.

The only place where citrated blood transfusions really should be used is to replace a volume of blood or a volume of fluid which has been lost, and in many of these cases our opinion is that saline and other things answer the same purpose.

I don't remember the exact reasons now why we did not give the patient a whole blood transfusion, but there was some reason which made us feel justified in doing a transfusion by the citrated method.

I want also to emphasize a point in doing transfusion; don't be satisfied merely with typing up the blood. The blood should be absolutely matched, the donor's with the recipient's. It is a very important point to remember if you desire to get the best results.

We have seen tremendous reaction follow in grouped blood, and we have found in grouped blood that they will not always match. Remember that the mother's blood or the father's blood does not necessarily group with that of the child after the first few months of life, nor does the blood of the brother with the sister or the sister with the brother. The fact is that close family relationship has nothing to do with it after the first few months of life, either with respect to grouping of the blood or matching of the blood.

I want again to say that I think this is one of the most important papers that this Society has ever had brought before it, and especially from a clinical standpoint, and I hope and trust it will meet with a very full discussion.

There is just one word of explanation. Dr. Frank referred to our having used citrated blood. The reason for this was that this patient was given a transfusion in March 1924 and the investigation of Baehr and Rosenthal showing the effect of citrate on blood platelets was not published until the following May. I think that if we had to do it over again, we would use whole blood.

Morris Flexner, Louisville: The question as to whether this disease followed the throat infection is of interest. At the time the disease was at its height the throat was apparently clear. I regret that no cultures were made from the spleen and suggest that this be done in future splenectomies for this disease.

In conclusion I wish to emphasize the fact that we are dealing with a disease of high mortality, easy recognition and diagnosis, with a therapeutic measure demonstrated to be successful. The mortality from splenectomy is low,—at present under 3 per cent, according to Mayo. The time and type of transfusion are of the greatest importance. In our case the patient's condition was good enough to warrant splenectomy without transfusion, though it had to be resorted to later. While citrated

blood was used with benefit, I feel the results might have been even better with whole blood. Every case of idiopathic purpura hemorrhagica should at least have the benefit of splenectomy.

SIMPLE DIARRHEA IN INFANCY.*

By W. J. SHELTON, Mayfield.

There are numerous classifications of "simple diarrhea in infancy." It is the kind we see so often during the summer months: the non infectious type. The most common form of diarrhea. It is known by various names, such as "fermentative diarrhea," "gastro-enteritis," "summer complaint," "intestinal indigestion" and "cholera-infantum," the latter name being used to distinguish the severe types with "marked constitutional disturbances."

"Intestinal indigestion" seems to me to be the best name. Rarely—if ever—do we find any anatomical lesion in the intestines in simple diarrhea. The diarrhea is not the result of an enteritis, but is attributable to substances produced by decomposition of food in the intestines. There are certain infectious diseases, such as dysentery and typhoid, in which lesions are present in the intestinal tract, and they give rise to diarrhea. There are many types of acute intestinal indigestion which shade into one another, yet the etiology is the same in all cases, so far as has been determined.

Occasionally we find cases of simple diarrhea and infectious diarrhea that are difficult to differentiate. The amount of blood in the stool is usually sufficient to make a positive diagnosis of dysentery. If necessary an examination for the bacillus can be made. The typhoid or dysentery bacillus is positive evidence of the disease present.

Where vomiting precedes the diarrhea it is usually due to an infection. The infectious types are seen less often than any other.

Practically all cases of summer complaint are due to acid fermentation of fats and sugars, which produce an acid medium in which only acid producing organisms will thrive. If excessive acidity continues for any length of time it will irritate the bowel and diarrhea will be the result. This proves conclusively in all types of simple diarrhea the infection is in the contents of the bowel and not of the bowel itself, as is the case in all infectious types; so by means of proper food management we can both prevent and cure the acute simple diarrheas. This statement is borne out clinically.

*Read before the Kentucky State Medical Association, Louisville, Sept. 22-25, 1924.

If the baby's hygiene as to clothing, bathing and ventilation is managed so as to cause heat to be retained by the infant, it is very likely to result in a simple diarrhea by causing acid fermentation in the intestines. Especially is this true in artificially fed infants.

The bacteriology of the disease remains uncertain so far as being able to say definitely what group of organisms attacks the undigested food that is found in the intestines of all these patients. The symptoms of the disease are familiar to us all. The onset may be sudden after some indiscretion in feeding or it may come on gradually. The fever usually causes little concern, and the prostration is in proportion to the severity of the disease. Vomiting is present in most cases, and is a serious complication when persistent. The stools at first contain undigested food and mucus—later they become watery. Fortunately relatively few infants suffering from diarrhea develop the severe forms. More than ninety-five per cent of the severe cases is among the artificially fed.

The treatment of diarrhea begins with prophylaxis. Infants should not be over-fed, whether on the breast or bottle. They should not be burdened with unnecessary clothes, nor confined in poorly ventilated rooms away from the sunlight. The infant should be made as comfortable as possible by his surroundings and all food and water should be properly sterilized before using. When the symptoms of simple diarrhea appear the indication is to diminish or completely withdraw food for a period of from twelve to twenty-four hours. Empty the alimentary tract by the administration of one-fourth or one-half an ounce of castor oil. Then let the already over-active intestine have a few hour's rest, the length of time depending upon the severity of the attack. Don't give a cathartic unless you give it early. As a laxative, I give aromatic syrup of rhubarb and milk of magnesia in equal parts in teaspoonful doses. The magnesia hastens intestinal alkalinity in addition to its laxative effect. For high temperature I use ice packs to the head, with repeated cool sponging. The diarrhea may be relieved to some extent by chalk mixtures and bismuth.

However, drugs are of secondary consideration in the treatment. We have come to rely upon diet as the chief factor in controlling simple diarrhea. In feeding infants it is desirable to fix the relation between the carbohydrates and protein in the food so there is neither a strongly alkaline nor a strongly acid intestinal content. However, it seems certain that when given in any reasonable amount protein causes no general disturbance and some claim there is no disturbance with the "maximum amount." Any

excess beyond the body requirement "is burned and used as a source of energy." Protein used in considerable amounts causes "dry, alkaline and usually constipated stools." When carbohydrates are fed in such large amount that there remains in the intestines considerable quantities that have not been digested and consumed, it is most certain to produce a diarrhea if kept up long.

The withdrawal of food always has a good effect and frequently the mild cases will stop without further treatment. If a period of starvation is instituted the intestines soon empty themselves of the contents and the irritated mucous membrane is given a chance to rest. If diarrhea is promptly treated by a short period of complete starvation followed by the feeding of gradually increasing amounts of proper food, we often protect the infant from serious disturbances of nutrition so common in diarrhea.

It can be easily understood that when a child is over-fed there is unused food in the intestines and this food is being decomposed by bacteria; if we put more food into the intestines it is "adding more fuel to the flame." During hot weather the infant requires less food and utilizes less. It requires more water—the indication is to feed a more diluted formula. A simple method of accomplishing this is to pour out so much milk and put in the same amount of water, but have both water and milk sterilized. All milk should be boiled three minutes, it is more digestible, it leaves the stomach quicker, the only disadvantages is the destruction of the antiscorbutic properties which can be supplied with orange or tomato juice. If it is not sterilized by boiling the bacteria get the food and the baby gets the toxins produced by the bacteria.

Constipation is seldom more frequent with boiled milk than raw and diarrhea is much less likely to occur. I like whole lactic milk with sugar or K. S. and a little barley or wheat flour. You can boil it with the starch in it and it should be boiled twenty minutes. The lactic milk is good for the diarrhea and the flour is good for the vomiting. Another formula I like is boiled skimmed milk with teaspoonful of ten per cent solution of argyrol to four ounces of milk given every feeding for one or two days, or you can use a teaspoonful of the argyrol to eight ounces of water and let him drink it as he wants water or use argyrol in both water and milk. In mild diarrhea reduce the amount of sugar in the diet—if more severe use skimmed milk with argyrol and make further reduction of fats and sugar, and if still more severe use lactic or protein milk, "protein milk should always

be used in the severe cases. Starches, such as barley, wheat and oats, do not readily ferment. Therefore, they make a valuable food for infants whose digestion is easily disturbed.

Nutrition must be kept up, food must be given as quickly as it can be digested, large quantities of water should be given throughout the disease. Perhaps, the greatest danger of diarrhea in infants is "the destruction of body tissues; they burn their own bodies for fuel." If a child dies of simple diarrhea it is because it doesn't get enough water and food, this is the whole matter. Water is the greatest element of diet.

"Two things take place in diarrhea": in one your patient gradually dies as in marasmus, the other is the one that dies in forty-eight hours. One wastes away slowly, burns up his body in addition to what little food he gets, the other quickly becomes dehydrated and the blood volume becomes depleted, as shown by Marriott, Reiss, Schloss and others. These patients can't use the amount of food that is necessary for them to have in order to live unless you increase the volume of blood so that they can take it up. When the elimination of water is greater than the intake, we have a condition that can't exist long without death, for the infant's body is about "seventy per cent water." If the baby vomits the water, he must have it some other way. Normal saline or Ringers' solution can be given by hypodermoclysis or intraperitoneal injections or intravenously.

Water is urgently required in all extreme cases. Failure of renal function is the result of excessive water loss from the baby by the bowel. In these cases acidosis is the result of the accumulation of acid, which would be eliminated if the patient retained plenty of water. When acidosis occurs, it is always in those patients who have become dehydrated, and it is of little use to administer bicarbonate of soda for its relief. Your patient is not dying of acidosis. It is obvious that another condition more grave than acidosis is operative, and that condition is a greatly diminished blood volume, caused by the loss of water. Hence it is unnecessary to give an alkali to correct the acidosis, for when a sufficient amount of water is given and the reduced blood volume which led to its production has been increased the acidosis will disappear. The loss of water from these infants is so excessive at times and the blood volume reduced to such an extent that recovery is impossible.

I wish to emphasize the following points in the discussion.

There is no lesion found anywhere in the intestinal tract:

No certain germ or group of germs is held responsible for this disease:

The germ attacks the contents of the bowel and not the bowel itself:

When death occurs it is from lack of water and food, and not from the absorption of toxins:

There should be a starvation period of twelve to twenty-four hours during which time only water should be given:

The introduction of saline or Ringers' solution into the body if there is much dehydration is the discussion.

Whatever food is used following the starvation period should be given in small amounts and increased only as rapidly as the digestion of the infant permits.

DISCUSSION

J. W. Kincaid: I will only say this: I heard a great many good points, especially in regard to the dehydration and acidosis. It is manifestly unfair to the essayist to attempt to discuss a paper which we have only indifferently heard. It is also manifestly unfair for the essayist to present to the Association a paper that is as excellent as it is, with so few present to hear it.

I really feel called upon to say that it would be perhaps better if the meeting should adjourn and the discussion of the paper be taken up tomorrow, allowing the author to re-state his summary before discussion.

Abrupt Suspension of Morphine in Treatment of Diseases.—Sollier and Morat observed four different cases (ostetis, dermatitis, psoriasis and intestinal-peritoneal syndrome) maintained by morphine given to relieve pain at first, and cured by suppressing the morphine. The primary affection, for which the administration of the narcotic had been required, was completely cured, without any specific treatment, as soon as the morphine was suspended. Abrupt withdrawal of the drug produces an intensive reaction, accompanied among other phenomena by a hypersecretion of all the glands. The changes in the blood are similar to the leukocyte reaction which occurs in most infectious diseases. It seems that the reaction is not only accompanied by elimination, with the morphine, of saturated cells, but aids the organism to overcome persisting infectious sequelae. They suggest the possibility of starting morphine treatment as a deliberate therapeutic measure in certain cases, to utilize the shock from its abrupt suspension.

PYELITIS, ITS RECOGNITION.*

By VERNON BLYTHE, Paducah.

Pyelitis is an inflammation of the pelvis of the kidney, where the kidney substance is involved, which is very frequently the case, it is known as pyelonephritis.

The causes may be brought about by many agencies. It follows acute infectious diseases, as typhoid fever, the colon bacilli being the chief factor, scarlet fever, diphtheria, gonorrhea, measles, colitis, otitis media, suppurative tonsillitis, renal calculi, local tuberculosis, cystitis and sarcomatous growths may all be followed by pyelitis. Bladder paralysis inducing cystitis producing pyelitis by extension is not an infrequent occurrence.

The earlier indications begin before suppuration starts. There is in the acute variety slight fever, maybe a chill. Tenderness is discovered over the region of the kidneys on palpation with a dull heavy feeling and some backache. The urine at this stage is scanty, highly acid. The pain is often severe in the earlier stage, simulating renal colic and radiating downward into the groin and over the orifice of the ureter's entrance to the bladder. Chills may intervene marked by profuse perspiration. The fever will have a definite rise and remission as the pus begins to form. Where the causative germ is the tubercle bacilli, the pain is referred to the neck of the bladder and is very severe, while the temperature is more often normal in the morning.

Anaemia soon becomes marked, the appetite is erratic, poor and then ravenous, and with craving for various character of foods not exactly suitable for the diet list. Loss of weight, night sweats, headaches, vomiting and weakness are later unfavorable symptoms.

The diagnosis or recognition of pyelitis is not always an easy matter, the clinical history and probabilities, the physical symptoms must be correlated with the findings worked out by all the aid the laboratories, microscope and X-Ray can render.

The urine is milky colored, scanty and acid at times, it may soon reveal blood corpuscles, pus cells and debris, mucus and epithelium. The pus may become so abundant as to block the ureter and causing a pyonephrosis. Care must be taken in looking for the character of bacilli or germs present, the tubercle bacilli is not always easily demonstrated. General septic condition and uremia with nervous manifestation, dyspnea and delirium are the culminating conditions.

The X-Ray, during the last decade, has become one of the most important factors in the diagnosis of urologic pathology; a light breakfast and a rather high plain enema are all the preparation necessary. Renal stones of any size, with the exception of uric acid and phosphatic calculi give very good shadows, where they are not superimposed by the pubic bones.

The Bucky Diaphragm, preferable—stereoscopic, with slightly upward tilted tube with patient on the back centering just below diaphragmatic muscle and another over the crest of ilium will give best view. We must recognize size, shape, position of kidneys and eliminate calculus. A cystoscopic examination with catheterization of the ureter with a pyelogram may be found essential to differentiate whether the object is out of the pelvis of the kidney.

The calices show enlargement where abscess is present and the lower pole of the kidney shows an increase in size.

It is only by using all of our senses and our laboratory agencies intelligently that we can clarify these intricate problems. In the last two decades an astounding amount of good work has been done in making urologic diagnosis clear. In operative work upon the urinary tract the mortality has been reduced from 20 per cent to a fraction, primarily brought about by an early recognition of the specific lesion in the urinary tract.

RENAL INFECTIONS IN PREGNANCY.*

By GEO. H. DAY, Louisville.

The path of the pregnant woman is beset with many perils. When we are reminded that it is estimated that fifty per cent are afflicted with some type of renal infection during pregnancy, it brings home to each of us our obstetrical responsibility.

Renal infections of pregnancy as classified by Cathelin¹ is based upon the failure of writers to distinguish between the various types and he classifies them as follows:

1. Simple pyelitis of pregnancy.
2. Pyelitis with retention.
3. Simple exudative pyonephritis.
4. Pyelonephritis with multiple abscesses of the parenchyma.
5. Pyonephrosis.
6. Infections suddenly appearing after previous diseases.
7. Infections suddenly appearing in kidneys predisposed to tuberculosis.

Authorities differ widely as to the etiology, pathology, diagnosis and treatment of this classification hence it is not within the

*Read before the Kentucky State Medical Association, at Louisville, Sept. 22-25, 1924.

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scope of this paper to attempt to settle the points in controversy. The question of whether the bacteria reach the kidney by ascending from the bladder, the blood stream or by the lymphatics, has been advanced and each proven with case reports without end. Brad-dock,² says "that the theory of infection thru the circulation is the usually accepted one." Andrews³ adds that "there is no consensus of opinion as to the method of infection of the kidney. The most obvious suggestion is that there is an ascending infection from the bladder—that is, a cysto-uretero-pyelonephritis."

Achard⁴ says "Inasmuch as digestive disorders often precede pyelitis, it is probable that the infection is primary in the intestine and that pyelonephritis is thus the effect of intestinal bacteria, consequent to general septicemia."

Each of the above has its champions, each having sufficient clinical material to prove their claims. Possibly all may be right. Could it be possible that infection may reach the kidney either from the blood stream, the lymphatics or the bladder, either one or in combination of all three routes?

Again we say that it is not within the scope of this paper to offer data to confirm any of these etiological questions.

The limited time allowed us precludes further review of the literature other than to cover briefly the consensus of opinion as to the relation of fetal position in the causation of renal infections.

"Many theories have been advanced to explain the frequency on the right side such as pressure of the pregnant uterus on the ureter, pressure of the head of the child, congestion and swelling of the mucous membrane of the bladder closing the ureteral orifice. It seems quite likely that it is a mechanical hindrance to the flow of urine on the right side, plus an unusual absorption of colon bacilli from the bowel, which leads to this infection." (Kelley and Burman.)

Harris⁵ found in 32 cases of pyelitis in pregnancy that the right side was involved in every case. In six cases both kidneys and in no case was the left side alone affected. Most of the other investigators are in accord with the theory of right sided infection and also that in every case we find a dilated ureter to the degree of amount of pressure extended and extent of infection present, both being coincident and dependent, one on the other.

Danforth⁶ reports a case favorably influenced by ureteral catheterization which showed the influence of pressure upon the right ureter. The ureteral catheter was stopped before it entered the pelvis of the kidney

while the patient was lying on the back or right side, but when the patient was turned on the left side so that the uterus gravitated away from the ureter, the catheter passed without the slightest difficulty. It has been our experience that in passing the uretral catheter an obstruction is usually noted six to twelve c.m. above the ureteral orifice, the point where the ureter enters the pelvis, showing that the question of pressure, obstruction and distention of the ureter must certainly be considered.

It is granted then that the right ureter from its position is compressed by the pregnant uterus more often than the left, because of its anatomical position, being further from the median line and naturally is less protected by the sacrum.

Our experience would lead us to believe that especially pyelitis in pregnancy is much more frequent than we formerly believed. It is questionable whether fifty per cent are affected but the fact remains that the percentage is unusually high.

The colon bacillus is usually found to be the infecting organism either alone or mixed with the staphylococcus, streptococci, bacillus of typhoid, pseudo diphtheria and proteus.

Various authorities state that renal infections usually occur in undernourished women of the poorer class. The writer believes that infection is rather more severe in the undernourished but many cases have been observed among women of the (well-fed) class, where the other extreme has been noted.

Many pregnant women undoubtedly pass through a mild pyelitis that is not recognized by her medical advisor, or if found by routine urinalysis is of that mild type that requires little attention. It is only the more severe types, with pain, loss of appetite, toxemia and temperature which necessitate medical attention. It is highly necessary when these symptoms exist to abandon the policy of watchful waiting and to institute thorough urological investigation. The pain is usually in the region of the right kidney although we have seen a number with diffused or referred pain.

Differentiation between typhoid, appendicitis, gall bladder and renal calculus must be made and while at times there may be an occasional one that develops confusing symptoms, the basis for a quick and certain diagnosis in the average case is simply urinalysis.

In all infections of the kidney free pus will be found in the urine.

The urine should not be centrifuged and the low power should be used and the presence of great number of pus cells should call for further investigation.

Pyelonephritis and pyonephrosis requires expert surgical care. In some catheterization, drainage and lavage will be found adequate while in others nephrotomy or nephrectomy must be done.

The tubercular kidney is quite a different problem. The vesical symptoms add to the patient's inconvenience and are aggravated by the pregnancy. According to Israel: "Pregnancy aggravates all bacilli; this unfavorable action is more marked on the tuberculous kidney than any other organ." Here again pressure on the ureter with retention of septic urine produces symptoms that require immediate attention. In the unilateral tuberculosis, nephrectomy is indicated. In bilateral, induced labor should be advised.

We have found silver nitrate the agent par excellence in kidney lavage. Having tried all of the highly recommended ones that have reached the market within the last ten years, we have returned always to the original and from our experience it is the best and most satisfactory.

In pyelitis very satisfactory results will be obtained by kidney lavage. In some cases it may be necessary to leave the urethral catheters in situ five or six hours, but usually a simple lavage will be all that is necessary. Naturally we must apply our lavage according to symptoms and to control infection is the basis of treatment.

The fact remains that usually amazing results will be obtained with this routine, and, after all, that is what we desire, a pregnancy that goes comfortably to term, a healthy child and the mother's infection subsiding so that subsequent pregnancies may be safely considered.

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DISCUSSION

J. H. Blackburn, Bowling Green: It occurs to me that this subject of pyelitis or renal infection is one that unquestionably is not recognized. I think that few of us, except when we are doing routine examinations, know just how frequent is infection in the pelvis of the kidney. I think

that a careful routine examination of every patient has, at least to me, to a surprising degree, explained a lot of obscure conditions, so that is the one point particularly that I would stress, that if we do these examinations in a routine manner, using always a catheterized specimen of urine, particularly in women, and then if necessary doing the cystoscopy and ureteral catheterization we are going to find a much more plausible explanation for a lot of our obscure conditions than ordinarily we would with a superficial examination.

I recently had the experience of carrying a lady through the fourth pregnancy and delivery who, since her second delivery, has had a bilateral pyelitis, a condition that certainly has been responsible in her condition for a great deal of discomfort and distress. In that particular case, I might say, I had gotten for her considerable relief by the administration intravenously of sodium iodid. It gave her quite material relief from the exacerbations that occurred at intervals during the pregnancy.

H. G. Sandlin, Richmond: I was wondering, when I heard this paper read, what the practitioners out in the rural sections of the country got from the paper. If you take the technical methods that the city specialists employ, the general practitioner in the country can't carry them out. Very few general practitioners can catheterize the ureters. We see many of these patients with a painful condition and soreness in the side, and so forth, on whom we expect to use some medical treatment. We would like you fellows to tell us what the medical treatment is and what to do for these cases out in the rural districts that can't get the advantage of technical methods that you have in the cities.

W. W. Anderson, Newport: Let us not wait to look for pyelitis until we have some, even one, of the classical symptoms. I speak with particular reference to pyelitis in children. I think that the real heroes and heroines that we physicians meet are children, because they suffer silently, they disregard their symptoms very, very often, and most of children's ailments are acute and tend rapidly to get well of themselves. A very large portion of infections in children are in the digestive tract and we give a purgative and wait and it comes out all right.

We fail to acquire the habit of painstaking study of obscure cases in children. The child will go on and play, even with a fever. The child will not complain of vague painful symptoms, will not mention pain until it becomes sharp enough to cause the child to cry. The child will not describe its symptoms accurately, will not throw sufficient light on the case for our guidance. Unless the child tends to get well, is really well in a short time, we had better

make the most thorough study of that case and not forget that children frequently have pyelitis.

On the question of the right-sided pyelitis of pregnancy, I have just one little suggestion to make in one case with which I had the fortune to be mixed up. We got considerable benefit by having the woman lie on the left side a good deal and take pressure of the affected side. It seemed to benefit her a great deal.

Vernon Blythe, (In closing): These are papers upon recognition and diagnosis rather than upon treatment. Of course, the discussion had to be limited in the paper on that. Dr. Sandlin has brought that up. There are a few points further that I want to stress upon the question of recognition, and I appreciate the remarks of those that have discussed the papers.

Dr. Anderson struck a very important point in the question of recognition of pyelitis in children. They have it quite a long time, often before the parents call you in, maybe a week or two weeks, three weeks or a month. They have been really sick, and they call you in and you find this. They have been in school, you take them out. I think really if you could analyze the majority of the cases of pyelitis in children you would find the majority coming possibly from an infection of the intestinal tract.

I have recently had some sad cases that advanced to quite a considerable stage in children, and I could find no evidence anywhere else except indiscriminate eating and lack of proper attention to the bowels. Another very important factor in recent years in the development of pyelitis has been the great surge of influenza infection. I think we have had quite a good many victims of pyelitis from influenza infection. I have known some definite cases that I am sure came from badly infected tonsils, and so you could go into this; but the main thing is to look that body over. You don't have to have an X-ray to do that. You don't have to have a great chemical laboratory to do that.

As Dr. Day said, in the early beginning of the cases a reasonably careful examination of the urine will make a wonderful revelation. Then if you want to make a microscopic examination look for degenerated pus cells in the kidney, the round epithelial cells, and often they are diagnostic.

George H. Day, (In closing): As Dr. Blythe said, these papers were not written along the lines of treatment.

In answer to the gentleman's request for the general practitioner in the rural districts, I don't know of any urological condition that is more amenable to diagnosis and treatment than these conditions, especially of the pyelitis of pregnancy. Fortunately, most of these cases are very mild types, and the treatment that I

have found most successful is after your diagnosis, rest in bed, as Dr. Anderson says, the patient on the opposite side, alkalization, the lactic-acid preparation, autogenous vaccine and if you can't get that the stock vaccine of the mixed type is very serviceable, and you will find that most of these cases will subside and make a quick recovery.

As I say, fortunately most of these cases are of that mild type that are amenable to this type of treatment, and I am very pleased to say that most of these cases, if recognized early, will spare the woman and spare the child and will put you on your guard against infections later on in other pregnancies.

INTESTINAL OBSTRUCTION FROM GALL STONES. CASE REPORT.*

By LOUIS FRANK, Louisville.

February 21, 1923, S. H. R., a male, aged forty-two, was referred to me by a physician in Southern Indiana. The patient gave the history of the usual diseases of infancy and childhood and pneumonia about thirty years ago. Otherwise the history was unimportant.

Personal history: Four years ago he had a severe attack of abdominal pain which was diagnosed and treated medically as appendicitis. Intestinal obstruction developed at that time and persisted for several days. He was confined to bed most of the time for quite a long period and later had considerable difficulty in inducing fecal evacuations; the abdomen was often distended with gas and repeated purgatives were required to secure stool. No blood was noted in the dejecta nor was any ever vomited. There was no diarrhea, no fever, no abdominal tumor. Pain during this attack was first noted near the umbilicus and gradually extended over the entire abdomen.

The present illness began a week before he came under our observation, the initial symptom being sudden pain beginning in the umbilical region; he once vomited some sour material; since then had passed small amounts of gas at intervals. After the administration of two doses pituitrin (1 c.c., each) a few fecal evacuations occurred the material his physician believed coming only from the lower intestinal tract. There was no relief from pain but distension—which had been progressive since beginning of the attack and was great when pituitrin was administered—gradually diminished. Before

*Clinical report with exhibition of specimens before the Louisville Medico-Chirurgical Society.

being admitted to the hospital, i. e., the night of February 20th, vomiting had occurred once which was the second time he had vomited since the beginning of the present attack. We were unable to get any more definite history.

Physical examination: Patient fairly well nourished; no cough; no lymph nodes palpable; sleep fairly well; heart and lungs negative; no hernia; no scrotal nor testicular abnormality; abdomen moderately distended; rectum negative to the examining finger. We were informed that a rectal tube had been introduced the entire length without meeting any obstruction before the patient was sent to Louisville. Just below the umbilicus there was noted a rather indefinite area of fullness about the size of a hand; the left rectus muscle showed more rigidity than the right. There was no difficulty in micturition and the prostate was not enlarged. There was noted very little gastric or intestinal peristalsis, the abdomen being unusually quite. Temperature 98 degrees F., pulse 100, respirations 20. Laboratory notes: leucocyte count 10,700; specific gravity of the urine 1020; albumin and casts present; no sugar.

On the basis of the history and these findings we made the diagnosis of intestinal obstruction from unknown cause. I may add that diverticulitis with localized peritonitis was suspected, or possibly, as a result of previous appendicitis with suppuration, rupture and local peritonitis, an obstructive peritoneal band.

The patient was taken to the operating room and a six inch median incision made extending from two inches above to four inches below the umbilicus. Upon opening the peritoneum several distended coils of small intestine immediately came into view. These loops were two and a half to three inches in diameter, very dark in color, leathery and greatly thickened; and instead of being mobile or loose they seemed to be "anchored in the cavity" and no protrusion occurred. Palpation revealed no obstructive bands, the intestinal coils being freely mobile in the pelvis. The distended loops appeared to extend upward and to the right posteriorly. The appendix was palpated and found perfectly free. The examining fingers encountered a hard concretion apparently in the mesentery which was at first thought to be a phlebolith. No blood had been discharged from the rectum and there was none in the abdominal cavity. We thought there might be a mesenteric thrombosis, but this proved untrue. Palpation of the upper right abdominal quadrant showed the entire ileum

and colon absolutely free and flaccid, and entirely empty.

The small intestine was reflected for examination and the four greatly, distended loops already mentioned were found densely agglutinated with obstruction existing at the point of the union between the loops. The intestine was adherent to the mesentery directly under the distended loops. A needle was introduced and much gas but no fecal matter escaped. As the intestine was dark in color, thick and leathery, we were sure that the distension was not acute but probably chronic due to long-standing incomplete obstruction below.

At the junction where the four loops of small intestine were densely adherent a hard mass was felt within one of the coils which proved to be a gall stone, and in attempting to separate two loops a perforation was found from which the concretion projected for half an inch. A large gall stone was removed, this opening was closed and the other loops separated. The agglutination was so thoroughly organized that separation by ordinary stripping was impossible and sharp dissection became necessary. An opening was found in a second loop of the intestine into which the gall stone was endeavoring to make its way. The intestine and mesentery were so damaged at this area that about three inches had to be resected. In another loop a third smaller perforation was found which was also closed.

The condition of the patient was so serious that no attempt was made to further explore the gall bladder region, but palpation when the abdomen was first opened had revealed nothing to arouse suspicion.

The explanation of the obstruction was now obvious, i. e., the patient four years ago had gall stones and not appendicitis; the gall bladder became attached to the intestine into which the concretion passed by the process of ulceration; it is quite probable that suppuration also occurred. Obstruction was partial for a long period, but finally became complete during the last attack. The stones evidently had become fixed in the intestinal wall as a result of peritonitis, suppuration and perforation, causing an obstruction chronic in type. Later for some reason fecal matter ceased to pass around the valve-like stone and complete occlusion occurred.

I have seen several other cases of intestinal obstruction due to gall stones, one the patient also from Indiana,—a man sixty-seven years old,—did not have complete obstruction until we saw him. In this case cancer of the intestinal tract had been suspected as a cause

of the obstruction. Roentgen-ray examination was made on admission to the hospital, and evidently the injection of bismuth paste into the colon released the gall stone, although numerous injections of oil and other substances had been previously given without result. After roentgen-ray examination and while being prepared for the operating room the patient had a desire to defecate, and after passing some of the bismuth paste with great discomfort, a gall stone two and a half inches long and one and a half inches in diameter which had caused the obstruction in the colon was discharged, followed by a large quantity of fecal matter.

I operated upon a negress several years ago and removed two gall stones which had lodged at the ileo-cecal valve thus causing complete obstruction. The larger stone was two by one and a half inches in size and was "scooped out" at one end where it had long impinged upon the other one. The smaller stone was about one inch in diameter.

In another case a single stone one and a half inches in diameter had lodged in the ileum, but not at the ileo-cecal junction, and produced complete obstruction. The intestine was opened, the stone removed, and the incision sutured.

Another patient gave the history of having passed several gall stones per rectum. She had localized peritonitis evidently due to impaction of another stone which was too large to escape through the fistula between the gall bladder and the colon. A single stone was removed at operation.

In another instance fifteen years after an attack of so-called gall stone colic, and after the discharge of twelve calculi, a woman developed jaundice with chills and fever evidently due to infective cholangitis. On opening the abdomen we found a fistula between the gall bladder and colon which had become partially occluded; and notwithstanding the presence of bile in the gall bladder, and the fact that this condition had probably existed for fifteen years, in the common duct we found a single faceted calculus of precisely the same character as those which had been extruded many years previously.

In discussing with my students the causes of intestinal obstruction I have always insisted that, in the aged especially, the rectum and colon should be interrogated for the presence of gall stones. Oftentimes in talking with such patients after operation a clear history of previous gall stone attacks will be obtained, which could not be developed prior to operative intervention. These people as a rule are very ill when they apply for relief, they are in such distress and pain that they

cannot give the surgeon a complete history.

These cases also serve to illustrate what may happen in a disease to which many people as a rule pay little attention. When the diagnosis of gall stones is made it does not mean nearly so much to the patient, for instance, as does appendicitis. It is my belief that gall stones are infinitely more dangerous than appendicitis, and I am in the habit of making this statement to my patients. In the majority of acute inflammatory, suppurative or infective intra-abdominal lesions, the clinical symptoms are such that warning danger signals are apparent; but the developments which ensue as a sequence of gall bladder disease, and especially gall stones, may be so insidious that the patient may be in serious condition with tremendous dangers from a surgical risk standpoint before these signals appear.

In the case which I have reported somewhat in detail the patient was not given preliminary gastric lavage, but he was operated upon with head lower than the body, and every precautionary measure observed to prevent aspiration of vomitus into the lungs, often the immediate cause of death in such cases. He was critically ill though he had no elevation of temperature and practically no acceleration of pulse.

DISCUSSION

Stuart Graves, Louisville: Dr. Frank's report of intestinal obstruction due to gall stones reminds me of an interesting case I once saw at autopsy in which a man had died of acute generalized peritonitis. At autopsy it was discovered that peritonitis had resulted from an acute, engrafted upon a chronic condition in which two stages of infection and obstruction were noted somewhat analogous to those in Dr. Frank's case except entirely different in character. We found that the man had an appendix six inches in length which had become looped upon itself in such way as to form a complete knot, the tip of the appendix being wound once around the body of the appendix near the base. Through this appendiceal knot a double loop of ileum had passed (about 30 c.m., in length) which had become attached by adhesions to the tip of the appendix. Traction on the long ileal loop attached to the tip of the appendix had drawn the knot tighter and tighter where the appendix was tied upon itself; pressure on the ileum where it extended through the knot in the appendix had caused necrosis; an ulcer had developed which gradually produced a perforation of the ileum with escape of the intestinal contents. The perforation was not large but fecal matter escaped producing generalized peritonitis which proved fatal.

Louis Frank, (Closing): It is remarkable the curious things which sometimes cause intestinal obstruction. I have now under observation in the hospital a rather curious case—and I had this in mind when I saw the man whose case I have reported because the history was somewhat similar.

A woman aged forty-two had appendicitis when fourteen years old. Perforation occurred with discharge of pus just below the umbilicus. When recently operated upon for another and unrelated trouble the whole upper right quadrant of the abdomen was completely isolated by the most dense adhesions I have ever encountered. No attempt was made to separate these adhesions, but I did try to explore the upper cavity to palpate the gall bladder region and could not do so. I concluded that, as the woman had gone twenty-eight years without any trouble from this tremendous mass of adhesions, it would be better to not disturb them especially as sharp dissection would have been required in their separation. She evidently had an attack of appendicitis with perforation and discharge of pus near the umbilicus and the entire upper area had become a mass of organized adhesions.

Following inflammatory disease within the abdominal cavity curious things often happen and it is remarkable how the intestine will occasionally "tie itself into a knot." Strange anomalies in development of the intestinal tract are also sometimes observed. For instance, I operated upon a child not long ago for intestinal obstruction. The entire right half of the colon including the cecum was found detached, without any fixation whatever to the posterior abdominal wall, simply hanging free in the cavity. The cecum in its rotation and the colon in its descent, instead of pushing their way downward beneath the peritoneum and retaining their fixation to the posterior wall as normally occurs, had pushed the peritoneum along in front of them. The child had intussusception which caused intestinal obstruction. This was relieved by operation and there was no further trouble.

BOOK REVIEW

Medical Gynecology. By S. Wyllis Bandler, M. D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Fourth Edition, Thoroughly Revised. Octavo of 930 pages, with 157 original illustrations. Philadelphia and London. W. B. Saunders Company, 1924. Cloth, \$8.00 net.

SOME EMERGENCIES AND TRAGEDIES IN THE PRACTICE OF MEDICINE.*

By C. C. HOWARD, Glasgow.

HEAD INJURIES.

1. Ruptured Mid-Meningeal Artery.
 - (1) Time.
 - (2) Focal Symptoms.
 - (3) Trephine at once.
2. Depressed Fracture.

DYSPNOEA (Obstructive).

1. Diphtheria, Laryngeal.
 - (1) Croup.
 - (2) Diphtheria Antitoxin, Large Dose.
 - (3) Intubate or Tracheotomy.

ACUTE ABDOMEN.

1. Gunshot Wounds or Injuries.
2. Perforations
 - Intestines.
 - Gall Bladder.
 - Stomach.
 - Bladder.
3. Appendicitis.
4. Ruptured Tubal Pregnancy.
5. Ruptured Uterus.
6. Intestinal Obstruction.
7. Strangulated Hernia.

HEMORRHAGE.

1. Placenta Previa.
2. Post-Partum.
3. Post-Operative.
4. In General.

I wish to make some general remarks touching a few of the emergencies and tragedies that have kept me humble and oftentimes humiliated. Speaking from the outline I have placed on the board I will take up head injuries.

Those that demand immediate attention in the way of operation are the ruptured Mid-Meningeal artery and Depressed Fractures. In the diagnosis of ruptured Mid-Meningeal artery the time element of loss of consciousness following concussion with a paralysis of the opposite side of the body from the injury are definite symptoms and demand immediate trephine. No surgery is indicated in head injuries without local symptoms or depressed fractures and especially during shock. My experience with decompression for basal fractures has been disappointing as most often you have a general oedema of the tissues which you cannot drain.

Next in line of discussion comes dyspnoea of the obstructive type. Every one has been called to see or had brought to the hospital a

*Read before the Third District Medical Society at Hopkinsville

child laboring for air. There is nothing more pathetic than to see a mother with a child in her arms, and it choking to death from obstruction to the larynx. These cases should be cured before they happen. All cases of croup that progress more than a few hours without relief from ordinary measures should be given at least ten thousand units of Diphtheritic Antitoxin. If a child is old enough and strong enough he may survive with large doses of antitoxin after his breathing has become difficult. But it is much safer and you will save many a life if you will intubate or do a tracheotomy and give large doses of antitoxin. Do not wait too late to relieve this difficult breathing. Have a well trained nurse to stay with the child.

Acute Abdomen. This is the one region that often makes us and often breaks us. Gunshot wounds and injuries to the intestines should have laparotomy if the patient is not in extreme shock. There is no way to tell the extent of the injuries except by seeing. I have just seen a case of injury to the lower abdomen in a child with vomiting. Abdomen was flat, passed gas and fecal matter and voided small quantity of urine. Urine was negative for blood microscopically on two or three examinations. Diagnosis was trauma of lower abdomen and kidneys. Post-Mortem showed perforated bladder with trauma to kidneys and diaphragm.

Perforations. Here you must show surgical judgment and courage because the life of your patient depends on opening the abdomen in the first eight or ten hours and closing the perforation. Pain is severe; abdomen is often boardlike. Operate immediately.

Appendicitis. A subject that is discussed at every medical meeting and still causes more untimely deaths than anything else in the abdomen. And why, oh, why will men continue to call it indigestion and give them a dose of oil, which may finally take them down the winding road to the cemetery? There is only one safe time to operate for appendicitis and that is before it has ruptured, during the first few hours.

Ruptured Tubal Pregnancies. Not often seen until after rupture, with a history of missing one period, a sudden pain in the lower abdomen, weakness and often faintness with a show of blood. Lower abdomen is tense and tender and pulse variable according to amount of hemorrhage and shock. If your patient is in good condition and can be immediately placed in a hospital operate at once. If the pulse is fast and shock is pronounced, give hypodermoclysis quart of saline, morphine and keep patient warm; notice pulse and blood pressure closely. Reaction will take

place in a few hours and when the systolic pressure comes back to 100 or 110, operate. I think it is bad surgery to attempt to move or operate during period of shock.

Intestinal obstruction always begins with pain and vomiting and the vomiting persists; unable to get gas per rectum makes definite a diagnosis of obstruction. This obstruction may be reflex from diaphragmatic pleurisy or a kidney or gall bladder or other lesion. Be sure and rule them out. In the reflex type you will not hear the rumbling of gas with your stethoscope, while in the mechanical type you will get a definite sound of peristalsis. If your diagnosis is the mechanical type, operate immediately. If the patient is in extreme condition do not attempt more than operating under local, opening small bowel and suturing catheter into it and draining, which will oftentimes tide you over and save your patient.

Strangulated Hernia. Do not forget when a patient complains of pain in the abdomen that he may have hernial openings and the gut may get down and become strangulated. Examine patient closely. If he has been unable to replace it, handle carefully because more than likely you will fail also. Operate immediately under local anesthesia. Be careful opening into the sac, you may open the bladder. If you do this, sew it up again immediately and drain. Always use local and if the patient is vomiting a great deal, wash out the stomach. If the bowel is at all questionable after hot towels are applied to it, resect. Murphy button is excellent. Do not put it back if there is any doubt about its viability.

Hemorrhage. Placenta Previa.—If a woman begins to bleed at the seventh to ninth month do not wait for her to have a severe hemorrhage and have to tear through the placenta and lose the child, but when you first make the diagnosis of hemorrhage have her removed to a hospital and do a Cesarean section and you will save both mother and child. **Post-Partum Hemorrhage.**—Those that have not lived through one can not appreciate what a trying time it is on both the doctor and the family. Immediately go into the uterus and clean it out and then hold it with your hand, both inside and out until you get contraction. Give hypodermoclysis at least a quart of saline and 1 c. c. pituitrin. If contraction is not good and hemorrhage does not cease, pack uterus and vagina with gauze. Keep patient warm. If not reacting favorably and circumstances are good do a transfusion.

Post-Operative Hemorrhage. Every surgeon has had a few and wants to have less. If the wound is where you can get to it easily,

pack with gauze. If within the abdominal cavity do not wait too late to open and tie off.

Hemorrhage in General. I am sure the profession pays too little attention to the loss of blood, especially from women. The loss of blood often means the loss of life. If not the loss of life, it means retarded recovery with morbidity. Let your hemorrhage be the minimum.

CHOLECYSTOSTOMY OR CHOLECYSTECTOMY.*

By L. WALLACE FRANK, Louisville.

In presenting the foregoing subject for discussion, we have little that is new to offer, and in the main this paper will be a consideration of the literature.

The *raison d'être* of the paper is the belief that, in surgery of the gall bladder, we are inclined to be a little too radical, with the result that many gall bladders are being unnecessarily sacrificed. I am not alone in this belief, for so great a surgeon as Ochsner apparently holds the same view.

There is no question that the gall bladder has definite and important functions, viz., the storage and concentration of bile. It has been noted in some instances after removal of the viscus that the stump of the common duct, and in others the cystic duct has dilated and assumed in part at least the function of the gall bladder. The gall bladder also plays an important part in regulating pressure in the common duct. Consequently I do not believe this organ should be treated like the appendix and be removed without definite indications therefor. Such indications may of course vary with different surgeons. It is questionable whether we may not do some patients damage by removing gall bladders still capable of function.

It might be well here to briefly review the theories as to the cause of gall bladder disease, by which we mean cholecystitis, acute or chronic, associated with, or without, calculi. Three views have been advanced. One of these I think we may discard in the beginning, viz., that cholecystitis is the result of ascending infection from the duodenum through the common duct. This might be possible if there occurred obstruction in the duodenum below the ampulla of Vater. However, it has been demonstrated that before there can be regurgitation of duodenal contents into the common duct the tension on the duodenum will be such as to cause its rupture. The other two views as to the

cause of cholecystitis are that infection reaches the bile passages (1) by way of the blood stream or (2) through the lymphatics. Each view has its advocates and neither can be definitely proven. Rosenow's work on the specificity of organisms would seem to indicate that the mode of infection by way of the blood stream is the more likely.

"As to how infection reaches the gall bladder, all are not now agreed. The theory promulgated by Gilbert and his co-workers thirty years ago, that organisms are taken up from the intestinal tract by the radicles of the portal vein, carried to the liver, become attenuated, reach the gall bladder in the bile and there initiate a low-grade inflammatory process, causing exfoliation of epithelium from the gall bladder mucosa, groups of these epithelial cells becoming nucleus around which cholesterol crystals are deposited, thus forming gall stones, is today a reasonable theory with a substantial basis. In no other way can we understand the cases that exist for many years, there being often large numbers of calculi in the gall bladder, without destruction of its walls." (Long).

Regardless of the mode of infection it must be recognized that the gall bladder infection, *per se*, is only a part of a cholangitis involving not only the larger bile ducts but the finer ramifications within the liver itself. In our treatment of gall bladder infection this fact should always be borne in mind. For this reason excision of a part of the diseased biliary apparatus will not effect a cure in all cases.

"The important consideration," says Graham, "is not the gall bladder, but the liver and pancreas. These latter organs have functions which are so important that they constitute 'vital organs'. We cannot live without either one of them. The gall bladder, even in its normal condition, has a function which is insignificant in comparison with that of the liver and the pancreas. The importance of the consideration of the liver and the pancreas lies in the fact that in every case of cholecystitis the liver and pancreas are both affected." In 1918 Graham called attention to the constant association of hepatitis with cholecystitis, and states there is also good reason for thinking that there is the same constant association of pancreatitis with cholecystitis. "Any consideration of the treatment of cholecystitis, therefore, gets down to a consideration of the best methods of preserving the functions of the liver and pancreas." (Graham).

It can not be questioned that cholecystectomy and cholecystostomy each has a place in surgery of the gall bladder, cholecystos-

*Read before the Louisville Medico-Chirurgical Society.

tomy is to my mind the operation of choice. In chronic cases with contracted or thickened gall bladder, or definite pathology of the gall bladder, and in malignancy, cholecystectomy should be performed.

The cases we particularly wish to discuss are those of cholelithiasis which at operation show no gross disease of the cholecystic wall. What shall be done in this type of case? As a rule in such cases cholecystectomy is not difficult, there are few if any adhesions, and following the operation recovery is rapid. However, this is the type in which we believe cholecystectomy needlessly sacrifice an organ which by drainage may resume its function without undue risk to the patient.

Not infrequently we find thin-walled gall bladders containing a large number of small calculi. Palpation of the mucosa reveals no incrustations and careful examination of the duct discloses no evidence of calculi. In such cases I am of the opinion that cholecystostomy is the procedure which should be employed, for by it we not only remove the offending calculi, but by drainage overcome the infection of the duct system.

There is another type of case in which no calculi are present, yet the patient exhibits symptoms of mild cholecystitis. Such gall bladders when removed are often reported by the pathologists as showing "acute catarrhal cholecystitis." Pathologically this is an entity, and the surgeon removing such gall bladders may, upon the basis of the pathological report, justify his surgical judgment. That such judgment is sound we can not agree, as it seems to us a needless sacrifice of a not indispensable organ. Review of the surgical literature shows that cholecystectomy is followed by recovery in such cases with no apparent untoward results, yet we do not know how many of the patients later return to the internist with symptoms of their former troubles.

It can no longer be doubted that after removal of concretions from the gall bladder followed by drainage there is re-formation of the calculi in a certain percentage of cases. This may be due to the fact that cholecystostomy was not the correct surgical procedure in the management of those particular cases. However, I would be inclined to the view that when such recurrent calculi occur drainage of the gall bladder was not continued for a sufficient length of time for the gall bladder and bile duct infection to subside. This I believe has been one of the greatest faults with the operation of cholecystostomy, viz., we have been in too great a hurry to get our patients well and out of the hos-

before the biliary infection had entirely subsided.

In chronic infections of the gall bladder with thickening, even slight, of the wall with change of color, whether or not associated with calculi, cholecystectomy should be performed.

In the cases where there are enlarged glands along the cystic or common duct, especially near the head of the pancreas, or where the pancreas is enlarged, if cholecystectomy be performed the common duct should in addition be drained. By removal of the gall bladder we eliminate the source of chronic infection, but as previously mentioned in these cases there is a coexistent lymphangitis of the biliary system with chronic pancreatitis. In order to overcome this infection drainage of the common duct is essential. The only other method by which the infection can be overcome is long-continued drainage of the gall bladder, and I believe unless there are such gross changes in the wall of the organ as to indicate evident pathology of the gall bladder itself, cholecystostomy will give good results.

DISCUSSION

Chas. G. Lucas, Louisville: I am very glad to have had the opportunity of hearing Dr. Frank's most sensible paper. I have often thought about this subject. When I look backward to the old days before surgeons began removing gall bladders, I think they secured much better results than they are getting today.

Since I have been doing non-surgical drainage of the gall bladder I have seen a great many patients who had been operated upon a year and a half or two years ago without complete relief of symptoms. This is especially true of patients upon whom cholecystectomy had been performed. I recall one woman in particular whose gall bladder had been removed, and when I saw her she was subject to attacks of tachycardia two or three times a week. She was drained once with relief and was taught to draw herself once a week and gets along very well now. In many cases where dilatation of the common duct occurs I believe the infection is still active. This suggests another point, i. e., we do not know when these patients are referred to the surgeon just how much infection there is. Dr. Frank is correct in stating that infection is usually present in the small radicles of the liver. In such cases when the gall bladder is removed perfect drainage is not secured.

In the so-called "strawberry" type of gall bladder, in malignant disease, and where the function of the gall bladder has been destroyed, it is merely a foreign body and cholecystectomy is indicated; but I believe many gall bladders

are being removed today which should be drained.

In closing I would like to have Dr. Frank give us his opinion about the operation of cholecystoduodenostomy.

Guy P. Grigsby, Louisville: I agree with practically everything Dr. Frank has said in his paper. The question of whether to perform cholecystectomy or cholecystostomy and drainage I think depends upon the judgment of the operator at the time. In badly infected gall bladders with thickened walls, in gangrenous cases and malignant disease, unquestionably cholecystectomy is the operation of choice. In practically all other types drainage is indicated. In profoundly septic patients, also, where a long operation such as cholecystectomy would markedly increase the clinical risk, possibly the surgeon will have to be satisfied with drainage of the gall bladder. Cholecystectomy may be undertaken later when the patient has sufficiently improved to make the procedure safe, provided the operation seems advisable.

The length of time drainage should be employed is another question which must be decided by the individual judgment of the operator. It is my personal plan to continue drainage until bile discharged from the gall bladder has resumed its normal appearance. In a few instances where there has been some question about this cultures have been made to determine the number of bacteria still present. In some cases three or four day's drainage may be sufficient, in others two or even three weeks will be required.

Following the majority of gall bladder operations, particularly in cholecystectomy cases, I heartily with what Dr. Lucas has said about non-surgical drainage. I make it the almost invariable rule now to subject these patients to drainage by the duodenal tube over a period of several months following all gall bladder operations. Many patients have come to me after previous cholecystectomy with rather marked symptoms, some deeply jaundiced, who have been relieved by duodenal drainage and have since remained in comparative comfort. Some of them have been entirely relieved of symptoms by drainage. So I would advise duodenal drainage in all cases. If this is done I believe the results will be much improved.

Ben Carlos Frazier, Louisville: Dr. Frank's paper raises a number of questions of interest to the general practitioner of medicine who usually sees the patient both before and after operation. It seems to me in the large number of cases of gall bladder disease operated upon during the last few years, the final outcome has been about the same whether cholecystostomy or cholecystectomy was performed. We

know that in many instances cholecystectomy has been unsatisfactory, and also that cholecystostomy has not always been satisfactory. On the other hand, satisfactory results have followed both operations. It has been my observation that middle aged and elderly people have done better after operations upon the gall bladder than younger ones. I can recall quite a number of middle aged people operated upon for gall bladder disease, and particularly where calculi were present, who were perfectly relieved and have remained well. I also recall three patients upon whom cholecystectomy was recently performed and none of them obtained relief, they still have pain, colic, indigestion, etc. I believe patients get along just as well in the majority of cases after drainage as after cholecystectomy. Unsatisfactory results have followed both operations.

John Walker Moore, Louisville: I would like to ask Dr. Frank one question: From an X-ray standpoint oftentimes we make a diagnosis of gall bladder disturbance from adhesions between the duodenum and the gall bladder with vague symptoms. I would like to know whether in cases like this the surgeon can tell from inspection whether drainage should be used or whether it would be best to remove the gall bladder, or would he have to open the gall bladder and see the pathology inside?

I am frank to say that we have in the medical dispensary every day four or five patients that the surgeon ought to see and operate upon to determine what is going on within the abdomen from a gall bladder standpoint; but the question is should we subject the patient to the risk of operative procedure based on the symptoms present? We have tried duodenal drainage and practically everything else. Duodenal drainage is all right for the time being, but I believe a large dose of salts is just as good. Magnesium sulphate is introduced through the tube, why not give it by mouth? If a sufficient quantity is taken it will certainly do the work.

Louis Frank, Louisville: I do not care to enter into a further discussion of cholecystostomy and cholecystectomy as I do not believe we would get very far by doing so. I think that men base their operative work largely upon their experience and that it determines what they do. I do not believe we alter the opinion of anybody very much by what we may think ourselves or by what has been our experience.

I want to speak of one point which was mentioned by both Dr. Lucas and Dr. Frazier, i. e., it seems to me before we did so many cholecystectomies our patients did better than they have in later years and this does not refer to either type of operation particularly.

In other words, the majority of our work fifteen or twenty years ago consisted of cholecystostomy and drainage. As I look backward over my gall bladder cases, patients operate upon fifteen, twenty or twenty-five years ago with drainage, have gotten along better than the patients operated upon today. I have been able to follow many of the patients and the majority of them have gotten along very well so far as I have been able to ascertain with few exceptions. I recall one woman who was operated upon years ago when it was custom to stitch the gall bladder to the fascia. She still has her biliary fistula but makes no complaint and gets around all right. The point is that these early cases have gotten along without subsequent disturbances of such character as to necessitate constant visits to the medical attendant, nor has it been necessary to resort to further surgery. I have seen very recently a woman we operated upon a few years ago and between two and three hundred gall stones removed. She was operated upon again within the last few months and five hundred gall stones were found. There will always be some unsatisfactory results whether we do cholecystostomy or cholecystectomy.

Is the type of infection different? I do not know but it is. I was very much interested in bacteriological work in the early days and had the opportunity of doing some work with Naunyn who wrote the first classical monograph that was ever produced on gall bladder infection, and as a medical man he did more for surgery of the gall bladder than anyone else in the early days. We found as a nidus for the calculi in many cases typhoid bacilli and I have cultured them. It was our custom then to ask the patient when he had typhoid fever, and we taught that these concretions followed typhoid fever with the bacillus as a nidus for the calculi. Today I believe it has been demonstrated to the satisfaction of a good many men that we have organisms about the teeth and mouth that when transported to the gall bladder by the blood or lymph stream produce cholecystitis and encephalitis. Rosenow has produced gall stones experimentally in animals by introducing the specific organisms into the circulation just as they have produced duodenal and gastric ulcers experimentally.

Has the infective agent in the production of biliary calculi been changed, or have we a new organism that is producing so much gall bladder disease? Of course in the early days there was much gall bladder disease that we did not find, but we do find it now by closer and more thorough study of the patient.

I was very much impressed some years ago by two papers read before the Southern Surgical Association, one by Richardson and the other

by Finney; it was really a heart-to-heart talk before the association. They did not know what they ought to do in certain types of gall bladder disease, and it is uncertain whether we are any smarter now. I doubt whether any of us know absolutely just exactly where we stand on this question of gall bladder surgery. We do know, however, that many of the patients return to their family doctors complaining of recurrence of symptoms months or years afterward whether we perform cholecystostomy or cholecystectomy. I do not know in how many cases this happens. A good many patients tell us they are feeling well, yet they may be going to Dr. Fulton, Dr. Moore or Dr. Lucas complaining of disturbances similar to those which existed prior to operation.

I believe the gall bladder has a function and that this function is assumed by the common duct after cholecystectomy. I do not believe the gall bladder has much function in the way of storage, because it is susceptible of only a certain amount of distension, if distended beyond that point the patient has pain just as pain occurs from obstruction by a calculus in the cystic duct. Pain subsides immediately when the obstruction is removed. The chief function of the gall bladder is the concentration of bile, and this function cannot be assumed by the common duct. It is likely for this reason that cholecystectomized patients have diarrhea after removal of the gall bladder which may last for weeks or months.

L. Wallace Frank, Louisville, (Closing): I thank the gentlemen for their discussion. It was mainly to excite discussion that the paper was written. My ideas as to the indications for cholecystostomy and cholecystectomy correspond with the views the gentlemen have expressed. My idea as to the pathology existing in the gall bladder as shown by section following cholecystectomy is just what Dr. Graves reports, i. e., in the most of them the gall bladder itself is practically normal. Personally I cannot see why cholecystectomy should be performed in such cases. The worst that can happen to the patient is that he may have to be operated upon again. Some patients have more trouble after cholecystectomy than after cholecystostomy. Of course nobody wants to operate twice for the same disease, yet so far as the patient's recovery is concerned I believe it is more satisfactory after cholecystostomy than cholecystectomy in cases such as I have mentioned.

As to the point raised by Dr. Moore about adhesions and what should be done at the time of operation: That varies a great deal with the character of the adhesions. Where the adhesions are pathological, dense and fibrous due to infection, and in carcinoma of the gall bladder, I think cholecystectomy should be per-

formed. In such the wall is diseased and the infection has extended through from mucosa to serosa. The idea that infection begins in the wall of the gall bladder and extends to the mucosa I believe is a mistake because such conditions do not occur in other hollow abdominal viscera.

LOCAL ANAESTHESIA.*

By J. W. STEPHENSON, Ashland.

As Dr. Hans Finsterer, of Vienna, has said, asepsis and surgical technique have become almost so perfect that improvement is hardly possible, therefore the results can depend only on the selection of the patients, on the kind of anæsthetic and the after treatment. It is unnecessary to consider the selection of patients, however, for every conscientious surgeon likes to receive all cases as they come and give them the best he has.

In comparing the post-operative course of similar cases under different types of anæsthesia, the care, the battles toward health and the unhappy complications always lurking in the shadows, we are convinced that the most important influence on the final success of any operation is the kind of anaesthetic employed.

In this paper it is my theme to discuss local anaesthesia in the phases of history, advantages, disadvantages, preparation and uses as they have come under my observation in literature and personal usage of the local anaesthesia method.

HISTORY

The history of local anaesthesia dates back to the primal ages when ice to the part and the heavy mallet to the head were first employed. Each new age brought forth further discoveries, however, until in 1855 it was left to Gædcke to first use cocaine as a local anaesthetic. In 1884, at the Heidelberg Congress, C. Koller of the Stricker Clinic in Vienna gave cocaine first place as an analgesic in ophthalmic practice, a position it has continued to occupy until the present time.

In 1905 a newer preparation called novocain, which is six to ten times less toxic than

cocaine, safe, efficient, non-irritant and inexpensive, was discovered by Einhorn.

Regional anaesthesia, so named because the fluid injected affects a particular part of a sensory nerve in its course, found its way into English literature through the pen of W. Mayo Robson in the British Medical Journal of 1886. At about the same time Oberst introduced a one per cent solution of cocaine in this connection and Hackenbach made an area of circular anaesthesia around the field of operation as an adjuvant to Chlor-ethyl Narcosis. In 1890, a report of a complete herniotomy under local anaesthesia by Harvey Cushing was enough to startle the whole world.

Thus may we see that the true art of local anaesthesia is but in its infancy and the door of its realm of unlimited possibilities has only been opened. During the last few years, A. B. Cook of Los Angeles, Crile of Cleveland, Farr of Minneapolis, Harris of Chicago, Allen of New Orleans, and Labat of New York City, in this country, Finsterer, Braun, Pauchet and others in Europe, have so extended the use of local or regional anaesthesia that it is now possible to perform any operation known to general or special surgery by this method.

ADVANTAGES

The advantages of local anaesthesia over general narcosis are legion in number. Perhaps of the greatest surgical value is the practical elimination of the dangers of general narcosis which denies a relatively large class of patients the benefit of necessary surgical procedure. Severe cardiac, nephritic and pulmonary conditions, anemias and general cachexias are undeniably contra-indications to general anaesthesia. In profound sepsis or intestinal obstruction with severe intoxication general anaesthesia unquestionably adds seriously to the operative risk.

Our experience with local anaesthesia has demonstrated to us that with its use far better results may be obtained in all cases demanding operations than with selected cases under general anaesthesia.

Old age and systemic diseases are no longer contra-indications to surgery.

The use of local anaesthesia in conjunction with general narcosis or anoci-association, as described by Crile, has gained ground rapidly during the past few years. In all abdominal cases operated at our hospital, which demand a general anaesthetic, the abdominal field block is used in conjunction with the nitrous-oxide-oxygen-ether anaesthetic. This method is employed for three reasons, first, to prevent harmful impulses from

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reaching the silent areas of the brain, second, to reduce the general anaesthetic agent to a minimum and third, to give us more complete relaxation of the abdominal muscles, thus preventing unnecessary trauma from retractors and packs.

Twenty years ago Lennander termed a combination of novocain with superficial ether narcosis, the ideal method of the future, but for some unknown reason, his lead was not followed by a great many surgeons. Crile found that the acid contents of the blood are increased by narcosis which in the beginning was compensated by the adrenalin of the suprarenal glands. Should this fail, symptoms occur leading to death. Crile's observation that this increase of acid in the blood is strongest in ether narcosis lead him to block the nerves by injection of novocain so that the amount of ether might be reduced to a minimum.

Local anaesthesia presents special advantages for operation in certain regions. It affords complete relaxation of the abdominal muscles, affording the accomplishment of delicate surgical procedures with surprising ease. The danger of injuring the recurrent laryngeal nerves is minimized in doing a thyroidectomy when the patient is able to talk throughout the operation. In one case, the patient who had been unable to talk above a whisper for several months, regained his voice during the operation. We have in six cases been able to know when the pressure was relieved upon the spinal cord by cord stimulation. Five of these cases followed fracture of one or more vertebrae, the sixth case was due to pressure from a thirty-eight caliber bullet within the spinal canal beneath the membranes covering the cord. In dislocations and fractures, nerve blocking presents an unlimited field. In brain surgery, surgery of the neck, chest, abdomen, pelvis and extremities, there are no contra-indications since this entire field may be covered by local anaesthesia. In all cases where it would endanger the life of the patient to use a general anesthetic, local anaesthesia should be employed.

But for the routine case, the greatest beauty of local anaesthesia lies in the elimination of surgical shock. The patient returns to his room able to read a newspaper, smoke his cigar and continue with a liberal diet if the operation is outside of the abdomen. In abdominal operations, with the exception of gastric and intestinal surgery, the patient is able to eat a more liberal diet much sooner after a local than when subjected to a general anaesthetic. There is very little post-operative nausea and vomiting, and the gas

pains, which so frequently cause the patient to regard the operating room as a chamber of horrors, are almost entirely absent under local anaesthesia properly applied.

DISADVANTAGES

It would not be sufficient to discuss local anaesthesia and give all of its advantages without considering a few of the so-called disadvantages encountered by every surgeon doing a great deal of work by this method. The greatest objection, of course, is the fact that the patient is awake and realizes all that is going on at the time of operation. The associated strain on mind and memory from remaining in full possession of all faculties can not be very severe or lasting, however, for it has been our experience that all patients once having undergone an operation with local anesthesia, refuse anything but local if they must be operated again.

With neuropathic and excitable patients, some movement on their part at a critical moment, might disturb the course of an operation to a marked degree, however, this has not happened in our work. Furthermore, local anaesthesia does not abolish reflexes in intervention upon the diaphragm, mesentery, organs contained within the abdominal cavity and the great blood vessels supplying these organs through the greater and lesser splanchnic nerves. This disadvantage has been overcome to a great degree by splanchnic analgesia as carried out by Labat and Kappis by injecting the splanchnic nerves from behind, or by Braun and Pauchet, who inject the splanchnic nerves from the front after opening the abdomen. Wendling also attempts to inject the splanchnic from the front by passing a needle through the left lobe of the liver and lesser omentum, but this method is too dangerous and should not be used in any case.

A large amount of local anesthesia may cause an extensive infiltration of the tissues and subsequent necrosis but if the anaesthetic agent is strictly sterile and injections are made under proper precautions, the infiltration gradually disappears and our personal observation is that there is no danger of sloughing. When the anaesthetic solution is injected along the line of incision, healing will be delayed in about twenty per cent of the cases. We discarded this method many months ago and have found no reason for returning to its use.

The anaesthetic may be thrown into a large blood vessel with the consequent rapid absorption causing symptoms of severe intoxication. This disadvantage can be eliminated by repeatedly making the aspiration

test while injecting in the region of large blood vessels. In using large amounts of novocain or neocain, as used in our hospital, the danger of rapid absorption can be greatly reduced by the addition of ten minims of adrenalin, one to one thousand to each one hundred cc. of anesthetic fluid up to a maximum of twenty-five minims for the average patient of one hundred and fifty pounds.

Last, and perhaps the only real disadvantage of local or regional anaesthesia is the danger of spreading cancer cells or infection from the infected to the healthy tissue by the needle during the process of injection.

PREPARATION OF THE PATIENT

Nothing is more important in local anaesthesia than the proper preparation of the patient. It is our custom to give barbitol or bromides the night before the operation and to be sure that all friends, relatives, doctors and nurses coming in contact with the patient offer only re-assurance.

About one half to one hour before operation, the patient is given one sixth grain of morphine sulphate and one three hundredth grain of scopolamine hydro-bromide. Sweek recommends giving the anaesthetizing injections in the anaesthetizing room, but it is our custom to get the patient comfortably settled on the operating table surrounded by pillows with a cold cloth over his eyes and a good psycho-anaesthetist at his head.

The importance of the anaesthetist, in these cases, is hard to overestimate. He must watch the pulse, respiration, facial expressions and blood pressure, not only while the patient is being injected but during the entire operation. He must be a student of human nature to the point where he can keep his patient's mind occupied by discussing things or pleasures which are most interesting to each individual. His line of talk may run from basket ball to chicken raising, and it is his duty to find out the things in which each patient is interested and keep everlastingly at the patient's hobby until the operation is completed. The question of giving caffein sodium benzoate, digiton or pituitrin is left entirely to his judgment.

During the operation, it is very important to be extremely gentle, and to avoid any manipulation or pressure which is apt to produce pain and disturb your patient. There should be no unnecessary noise, and not for one minute should we forget that the patient is awake and knows what is going on about him. These factors mean constant vigilance and careful training of all who take part in the operation and care of the patient.

We agree with Farr that much may be acquired from literature and visits to Clinics, but the knowledge of most importance is attained by the use of the local anaesthesia method in one's own operating room, supplanting the local by ether or nitrous oxide when required. In a series of three hundred and forty major operations under local anaesthesia we have resorted to nitrous oxide in only three cases as follows:

One retro-caecal appendix, one retro-peritoneal appendix and one common duct obstruction. In no case have we resorted to ether or chloroform in this series of cases started under local.

TECHNIQUE

The progress of local anaesthesia in the various departments of surgery since the introduction of novocain has depended to a great extent upon perfected methods of administration guided by an accurate knowledge of regional anatomy. This will be exemplified in describing the technique used in the series of cases operated at the Ashland General Hospital covering a wide field in the application of local anaesthesia.

During the past few months we have done one hundred forty appendectomies under local anaesthesia using either the costo-iliac field block, or a field block of our own. In the costo-iliac field block the deep injections are made through two wheals raised; the one about two finger breadths posterior to and above the anterior superior spine of the ilium, and the other, below the costal margin, at about the tip of the eleventh rib. The syringe is filled with one half per cent novocain containing ten minims of adrenalin, one to one thousand, to each one hundred cc. of anaesthetic fluid, and the needle is passed through wheal number one and number two successively, and the fluid is distributed fan-wise within the muscular layer. The anaesthetic fluid is expelled as the needle is carried forward as well as while being withdrawn. The ilio-inguinal and ilio-hypogastric nerves are blocked as they come forward and downward between the peritoneum and transversalis muscle and between the transversalis and internal oblique muscles. The eleventh and twelfth intercostal nerves are blocked through the upper wheal after which one should wait at least ten minutes before making the skin incision. This method is useful when operating with the McBurney incision and can be extended to include the tenth inter-costal nerve when operating through a right rectus incision. For the past six months we have employed a field block of our own for this operation, by injecting

through a wheal two finger breadths to the inner side and slightly above the anterior superior spine, in this way blocking the ilio-inguinal, ilio-hypogastric and twelfth intercostal nerves followed by a subcutaneous injection almost quadrilateral in shape which takes in the outer half of the rectus muscle, enclosing the field of operation. No other deep injections are made except at a point near the outer border of the right rectus which blocks the terminal fibers of the eleventh intercostal nerve. We then make a transverse incision through the skin, superficial fascia and the fascia of the external oblique, followed by a splitting of the oblique and transverse muscles. This incision is used to gain more space without too much trauma from retractors. After the peritoneum is opened, it is blocked from within with a one half per cent solution of neocain to which occasionally we add a one fifth per cent of quinine and urea hydrochloride. In using this transverse incision, one may open the sheath of the rectus and roll the muscle toward the median line which procedure will give all the space required for any operation upon the appendix, caecum or terminal end of the ilium. In all cases, whether simple or complicated, we block the meso-appendix, which will permit clamping and ligating without pain unless there is too much retraction or pulling involving the deeper structures. In the above series of cases we have only been forced to use nitrous oxide in conjunction with the local, twice. Through this incision we have been enabled to deal with a Meckel's diverticulum in one case and an ovarian cyst the size of a small orange in another patient. The secret of doing an appendectomy under local anesthesia is to remember at all times that your patient is awake and that he has a sympathetic nervous system which will react very strongly unless the tissues are handled carefully. If in a given case you must make traction upon the caecum, do so very gradually and gently and you will be agreeably surprised by the way the tissues respond to your careful handling. Never be in a hurry when picking up your peritoneum or meso-appendix with hemostats but always be sure to close your forceps slowly and there will be no reaction from your patient. Our mortality in this series of cases was three and fifty seven hundredths per cent, and all of these deaths occurred when the patients were operated after the appendix had ruptured.

In operating for gall bladder disease, local anaesthesia especially is gratifying by using one or a combination of methods. In a patient with a thin abdominal wall it is pos-

sible to do a cholecystotomy or cholecystectomy under a simple abdominal field block. Adhesions may be dealt with, in a great majority of cases with this method, by using sharp dissection, however, in some cases we have found it necessary to inject a small amount of anaesthetic solution in the region of the cystic duct, but we have never found it necessary to use the splanchnic analgesia by the anterior route even when removing stones from the common duct. This operation is performed by raising the superficial skin wheals along the right costal margin to the tip of the eleventh rib and should be extended to the region of the right anterior superior spine if the appendix is to be removed at the same time. Three superficial wheals are raised along the left costal margin to block the seventh, eighth, ninth, tenth and eleventh intercostal nerves which throw fibers across the median line, and to give better relaxation in the epigastric region. The same intercostal nerves are blocked as they emerge from the costal margin on the right side and the twelfth intercostal with the ilio-inguinal and ilio-hypogastric should be blocked if removal of the appendix is to be attempted. In all cases where gall bladder surgery is contemplated in stout individuals, splanchnic analgesia should be resorted to before starting your abdominal block. We use the posterior route of Kappis as described by Labat, since, with proper technique, we consider it much safer than the anterior route as used by Braun, Finsterer and others. The patient is placed upon the table in a lateral position, back slightly arched. The twelfth rib is defined by palpation and a wheal is raised on the lower border of the twelfth rib 7 CM distant from the midline of the spine. A needle about 12 CM in length is introduced through the wheal and advanced toward the twelfth rib, with which it takes contact. The needle is then passed below the rib and inclined toward the spine in a direction making an angle of thirty degrees with the sagittal plane of the body. The point of the needle takes contact with the vertebral column at the junction of the lateral and anterior aspects of the body of the vertebrae, just behind the splanchnic nerves. The needle is slightly withdrawn and the point permitted to pass over the anterior-lateral border of the first lumbar vertebrae, one CM further. The syringe, loaded with the anaesthetic fluid, is then attached and the aspiration test performed to be sure that the point of the needle is not in the aorta on the left side or the inferior vena cava on the right side. Twenty to thirty-five c.c. of a five-tenths per cent neocaine containing ten minims of

adrenalin to each one hundred cc. is then injected. The needle may be withdrawn and the same or lesser amount of the anaesthetic fluid injected in front of the twelfth dorsal, again withdrawn and reintroduced 3 CM lower, where another similar injection is made. The patient is then turned over on the other side and the same procedure repeated. During this injection it is well to have the anaesthetist watch the patient carefully since in one or two cases the pulse became very rapid, although there were no other signs of discomfort. With the above method we have removed nineteen gall bladders with one death, a mortality of five and twenty-six hundredths per cent. We have operated three common duct obstructions by this method with no deaths and under the same method we have drained three gall bladders with one death, a mortality of thirty-three and one third per cent. This patient was moribund and should not have been attempted by any method, although we felt it our duty to give her a chance if possible. In all cases of abdominal field block in gall bladder surgery we have used one half per cent neocaine. We have never attempted para-vertebral dorsal block or anterior splanchnic analgesia in this series of cases.

About seven months ago we did a splenectomy for cyst of the spleen under splanchnic analgesia and abdominal field block. This case had been explored some months before he came to our hospital, and at the time of operation, which was done through a left rectus incision, we found the cyst adhered to the abdominal wall along the previous suture line, and to the bladder. This operation was completed with very little hemorrhage and practically no pain, and I feel that at least, this is one case in the series whose life was saved by local anaesthesia since a number of good surgeons had refused to operate him due to a cardio-nephritic condition. This patient was examined by me a few days ago, has gained thirty-five pounds in weight and is in good condition considering his cardio-renal pathology.

During the past few months we have performed nine complete hysterectomies under local anaesthesia, eight by the abdominal route and one through the vagina. In the abdominal hysterectomies we have simply used the Caudal block, injecting thirty to fifty cc. of a one per cent neocaine solution into the sacral canal through the hiatus sacralis, never using more than five minims of adrenalin in one of these injections. With the patient lying on her stomach, a pillow is placed under her hips to render the bony landmarks more accessible. An attempt is

then made to locate a depression in the gluteal cleft which represents the sacral hiatus which is bounded by the fourth sacral spinous process above, forming the apex of triangle, and by the sacral cornua on each side below at the junction of the sacrum and coccyx forming the base of the triangle. A skin wheal is raised over this area and the spinal puncture needle, with its stylet in place, is introduced at an angle of about twenty degrees with the skin surface, at the site of puncture. One can feel the point of the needle pierce the sacro coccygeal membrane, at which time the needle is slightly withdrawn and the hub pressed downward toward the gluteal cleft, increasing the angle to about forty degrees. The needle is then advanced slowly and gently into the sacral canal until about six CM of its length has been introduced, unless the point of the needle impinges on the posterior wall of the sacral canal before this point is reached. In a few cases we have been unable to introduce the needle more than four CM, but by using a greater quantity of anaesthetic fluid in these cases our results have been uniform. When the needle has reached the desired level attach syringe and make aspiration test before injecting anaesthetic solution. We have found in doing the Caudal block in several cases that the pulse in a large percentage of these cases become rapid. This, however, should cause no alarm if one carries out the injection very slowly. The patient is then placed upon the back and the regional field block carried out. Three wheals are raised along the lateral margin of the recti muscles. Through these wheals the recti muscles are injected fan wise, and through the lower wheals injections are made behind the pubis in the prevesical space. These wheals are then connected by a subcutaneous infiltration, with the exception of the two upper wheals. The abdomen is opened in the median line and the peritoneum blocked from within, using for this block one half per cent neocain. As soon as the abdomen is opened and explored, the uterus is grasped with a tenaculum forcep and lifted into the wound without undue pulling. At this stage of the operation, the infundibulo-pelvic ligament is blocked with a one half per cent neocain followed by a blocking of the round ligaments near their entrance into the internal abdominal rings, after which about ten cc. of one half per cent neocain is deposited on either side of the cervix to block the sympathetic plexus which is formed from the branches of the sacral sympathetic and the hypogastric plexus. You may now remove the uterus and its

appendages completely by the usual method without an undue amount of trouble. The one vaginal hysterectomy done under local was completed in exactly the same manner except for the abdominal field block. The round ligament, broad ligament, and cervical plexus was blocked after the abdomen was opened from below and the uterus was removed without pain. In this case we also did a perineal repair and a hemorrhoidectomy. We have done six supra-vaginal hysterectomies using the same method as above described and in a series of fifteen hysterectomies there were no deaths. Continuing a study of our hospital records, we find that we have done seventeen oophorectomies and twenty-three bi-lateral salpingectomies with the local method using the same technique as used in the complete with no deaths. This work in the pelvis has been very gratifying to us since we have been told by some very good regional anaesthetists that it was impossible to do this work with any degree of satisfaction.

Our records show that in the past three years we have done eight posterior no loop, gastro-enterostomies, under local anaesthetic with resection of duodenal ulcers in four cases. In the majority of these cases we used the simple abdominal field block, however, ten days ago we combined the splanchnic analgesia with abdominal field block in a patient twenty-seven years old and completed the following operations without recourse to any type of general anaesthetic, appendectomy, resection of duodenal ulcer, obliteration of the pylorus, posterior no loop gastro-enterostomy and cholecystectomy. There is probably no field in surgery which gives such gratifying results under local anaesthesia as that of the upper abdomen when combining the field block with splanchnic analgesia. In this series of cases there was one death following a simple gastro-enterostomy for inoperable carcinoma, which gives us a mortality of twelve and five tenths per cent.

In carcinoma of the transverse colon under abdominal block with blocking of the meso colon after the abdomen is opened, we have had two cases with one death, a mortality of fifty per cent.

In the last ten goiter operations, which have been performed at our hospital under local anaesthesia, there have been no deaths. The method used being the lateral block of the cervical plexus which was carried out through two dermal wheals, one finger breadth below the tip of the mastoid process and wheal number two opposite the superior cornu of the thyroid cartilage situated just

behind the sterno-mastoid muscle and the external jugular vein. Wheal number two marks the tubercle of Chassaignac, or the behind the sterno-mastoid muscle and the tubercle of the sixth transverse process.

This point is used as a landmark only. The only difficulty encountered in the lateral cervical block is found in heavy individuals in which the tubercles of the transverse processes are not easily found. It is customary to distribute the solution subfascially and subcutaneously along the posterior margin of the sterno mastoid muscles.

Blocking of the Gasserian ganglion, may be done for the release of pain for any one or all three branches of the fifth cranial nerve, or for removal of this ganglion or resection of its posterior root. Last January we resected the posterior root of the Gasserian ganglion in a case which had been injected three times at one of the leading clinics in this country. The technique employed in this case was as follow: A point was taken three CM lateral to and a little above the angles of the mouth at which time a dermal wheal was raised and a twelve CM needle introduced along the line of intersection of two planes, one of which passes through the site of puncture of the needle and the pupil of the eye of the patient, and the other through the same site of puncture and the mid point of the zygoma, on the same side in such a way that, when facing the patient, the needle is directed toward his pupil, and, when looking laterally, it is directed toward the midpoint of the zygoma. The needle passes between the ascending ramus of the lower jaw and the tuberosity of the maxilla passing through the pterygoid muscles. At a depth of five to six CM the point of the needle strikes against the smooth infra temporal plane, in front of the foramen ovale. Its direction is upward, inward and backward. The hub of the needle is then raised so that its point aims at the articular tubercle of the zygoma. The needle is then introduced still further at which time contact is lost with the infra temporal plane and the point of the needle passes into the foramen ovale at which time parasthesias in the lower jaw immediately follows. The needle should not be passed more than one and five tenths CM after losing contact with the infra temporal plane, at which time one cc. of a two per cent neocain solution should be injected. After completing the injection of the Gasserian ganglion, it is necessary to block the temporomalar, which is the second branch of the trigeminus and the auriculo-temporal or third branch of the trigeminus, and the deep temporal nerves by fan-

wise injections through the entire thickness of the soft parts in the temporal region between the outer angle of the orbit and the external auditory canal. This injection is followed by a subcutaneous injection around the proposed line of incision which blocks the terminal fibers of the supra-orbital, supra-trechelear, lesser and greater occipital nerves.

In the one case operated at our hospital we used the oblique incision and opened the skull above the zygoma. In resecting the posterior root, the middle meningeal artery was lacerated at its exit from the foramen spinosum, this foramen was plugged with bone wax and the bleeding was not troublesome. This man had no ophthalmic changes and is entirely well at the present time.

About three months ago we did a nephrectomy following a traumatic rupture of several days standing and at the time the patient entered the hospital there was a mass which extended from the region of the kidney on the right side to the umbilicus. This kidney was removed and drainage established through the usual incision after para-vertebral dorsal block and para-vertebral lumbar block from the eighth dorsal to the third lumbar vertebrae, using five cc of one half per cent neocaine for each dorsal nerve and seven cc for each lumbar nerve. We did not attempt splanchnic analgesia in this case to block the splanchnic fibers following the renal vessel for the reason that our landmarks were completely obliterated.

This patient made an uneventful recovery and had regained his normal weight when he reported a few days ago for examination.

We have, during the past two months, performed the radical amputation for carcinoma of the breast in two cases, and in neither of these cases were we forced to do a brachial plexus block. We found that by blocking the intercostal nerves supplying the region of the breast and by blocking subcutaneously from the acromion process along the clavicle to the sternal and following the border of the sternum to the costal margin, and along the costal margin to the point where we blocked out intercostal nerves followed by infiltration of the axilla there was practically no pain from this dissection. Both of these cases healed nicely, but sufficient time has not elapsed to know what the final results will be.

In view of the fact that my time is limited it will be necessary for me to only mention the other operations performed at our hospital under local anaesthesia without going into detail as to the type of nerve block or method used.

Three sub-temporal decompressions for the relief of pressure by blocking the superficial and deep temporal nerves with one death, a mortality of thirty-three and one third per cent.

Ligation of the common carotid artery for gunshot wound, at point of bifurcation using simple infiltration of one per cent novocaine. Patient recovered.

Ligation of internal jugular vein for thrombosis of the lateral sinus, infiltration method, patient recovered.

Ligation and removal of internal jugular vein for thrombosis of lateral sinus and vein, infiltration method, patient died, mortality, one hundred per cent.

We have removed one bullet from leg, one bullet from the hand and one bullet from the arm with infiltration anaesthesia. One bullet from the abdomen under field block and two bullets from the spine under para-vertebral block. In the case of the bullet in the abdomen a large tear in the ascending colon was repaired. This patient died a few days later from a general peritonitis. Recovery in the other four cases.

We have repaired five ventral hernias with abdominal field block, four umbilical hernias by blocking the intercostal nerves at the point of their entrance into the recti muscle and twenty four inguinal hernias by using the method of Labat, injecting a one half per cent neocain through the para-iliac wheal which is placed about two CM above and to the inner side of the anterior superior spine. These injections are made fanwise from the subcutaneous tissue down to the transversalis fascia, and extending from the crest of the ilium to a point near the rectus border. A subcutaneous infiltration completes the wall of anaesthesia which blocks the ilio-hypogastric, ilio-inguinal, and the twelfth intercostal nerve. The needle is then passed through the pubic wheal, deep injections are made along the horizontal ramus of the pubis, on each side of the spermatic cord, into the pubic attachment of the rectus muscle and extending a little beyond the midline. Through the same side of puncture subcutaneous injections are then made along the horizontal ramus of the pubis to a point beyond the mid-line. The needle is now inserted through wheal number three and deep injections are made beneath Poupart's ligament, followed by a subcutaneous injection parallel with this ligament. This injection controls the overlapping branches of the anterior crural, external cutaneous and the crural branch of the genito-crural nerve. The genito-crural nerve may be injected after exposure of the internal ring, the injection being made to

the inner side of the spermatic cord. There were no deaths in this series of operations.

We have operated three ruptured extra uterine pregnancies during the past few months using the Caudal block and abdominal field block. In these cases the Caudal block is given while the patient is lying on her side. In one of these cases, which was unconscious when she reached the hospital we did a transfusion with her own blood after citrating. All these cases recovered.

We have operated two cases of sarcoma of the testicle and three hydroceles under local anaesthesia using the same technique described for inguinal hernia with the addition of circular anaesthesia subcutaneously around the base of the scrotum, the nerve supply approaching the scrotum from the inguinal canal must also be blocked through a second pubic wheal. In one of these cases we removed the scrotum with both testicles, the spermatic cords to the internal abdominal ring and the lymphatic glands on either side. This patient healed very rapidly leaving the hospital a few days ago, but just what the end results will be I am unable to say at this time. No deaths.

There have been five rib resections for empyema, blocking the inter-costal nerves supplying the rib to be resected and one above and below. No deaths.

There has been drainage of the culdesac for pelvic abscess in four cases under Caudal block. All recovered.

Six tumor growths have been removed under local anaesthesia, two from the buttox, two from the face, one from the back and one from the neck. All recovered.

One open operation for fracture of the lower jaw by infiltration anaesthesia, one open operation for an old fracture of the ulna under brachial plexus block with circular anaesthesia subcutaneously around the arm just above the condyle. No deaths.

Reduction of Colles' fracture by blocking median, musculo-spiral and ulna nerves at elbow.

One thigh amputation by paravertebral block of the second, third, fourth and fifth lumbar nerves and trans-sacral block through the sacral foramen on the site operated. At the time of operation this man was septic and was a very poor operative risk under any method. He healed very slowly but at this time he is perfectly well.

One astragalectomy for crushing injury of the astragalus under block of the great sciatic nerve with a subcutaneous garter infiltration just below the knee. Patient recovered.

Other operations performed under local were as follows:

Dilatation and curettement, Caudal block, three cases; resection of head of first metatarsal bone, dorsal block, one case. Fistula in ano under Caudal block, three cases; resection of vas-deferens, both sides, using the same method employed in inguinal hernias. Osteo-myelitis, one femur and one humerus, under simple field block.

Two cervical glands, (two cases) infiltration anaesthesia. One bullet in the spinal cord, para-vertebral block, one bullet in the sixth cervical vertebrae, paravertebral block, exploratory laparotomy, abdominal field block, two cases. Perineorrhaphy, Caudal block, four cases, Intra-uterine polyp, Caudal block, two cases, Laminectomy for fractured vertebrae six cases under para-vertebral block. Benign tumor of the breast by circular infiltration subcutaneously around the breast with sub-facial deep injections beneath the breast, one case. Ischio rectal abscess, Caudal block, two cases.

	Cases	Deaths	Percentage
Appendectomy	140	4	3.57
Thyroidectomy	10	0	
Cholecystectomy	19	1	5.26
Common Duct Obstruction	3	0	
Drainage, gall bladder	3	1	33.33
Splenectomy	1	0	
Hysterectomy (Complete)	9	0	
Hysterectomy (Supra-vaginal)	6	0	
Oophorectomies	17	0	
Bilateral salpingectomy	23	0	
Gastro-enterostomy	8	1	12.5
Carcinoma transverse colon	2	1	50.
Gasserian ganglion	1	0	
Nephrectomy	1	0	
Complete breast amputation.....	2	0	
Sub-temporal decompressions....	3	1	33.33
Ligation common carotid artery	1	0	
Ligation internal jugular	1	0	
Bullets—leg	1	0	
Bullets—arm	1	0	
Bullets—hand	1	0	
Bullets—abdomen	1	1	100.
Bullets—spinal cord	1	0	
Ventral hernias	5	0	
Umbilical hernias	4	0	
Inguinal hernias	24	0	
Ruptured Extra-Uterine Pregnancies	3	0	
Sarcoma testicle	2	0	
Hydrocele	3	0	
Rib-resections	5	0	
Drainage Culdesac	4	0	
Tumor buttox	2	0	
Tumor face	2	0	
Tumor back	1	0	

	Cases	Deaths	Percent- age
Tumor neck	1	0	
Colles fracture	1	0	
Astragalectomy	1	0	
Dilatation and curettement.....	3	0	
Resection of hand, 1st meto-tar- sal	1	0	
Fistula in ano	3	0	
Osteomyelitis femur	1	0	
Osteomyelitis humerus	1	0	
Exploratory laparotomy	2	0	
Perineorrhaphy	4	0	
Laminectomy	6	0	
Ischio Rectal abscess	2	0	
Benign tumor breast	1	0	

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DISCUSSION

W. I. Hume, Louisville: I am very sorry that more of you did not hear Dr. Stephenson's paper, and that it was not possible for him to read all of it. I read the paper and it was very good indeed. It covers an immense field. One, of course, could not discuss all of the details in any one paper. Some few years ago I presented a paper on the subject of local anesthesia and a prominent surgeon ridiculing the whole idea declared that, after mentioning warts and moles and boils as indications for its use, it reminded him of a pop gun on the Hindenburg Line.

Ten years ago the subject of local anesthesia in major surgery was being ridiculed by men who did a great deal of surgery. Yet mortality in certain classes of cases has been cut nearly in half by the use of local anesthesia. Harvey Cushing tells us that in strangulated hernia, the mortality has been cut perhaps in half. These instances could be multiplied on and on. In

other words, the subject of local anesthesia is very important and becoming more and more so.

Dr. Long, of the Southern Anesthetists Association, informed me that he had written, I think, six men, all prominent men, asking them to discuss some phase of local anesthesia at their meeting in New Orleans and every one of them accepted, which was to him very unusual because he said that one out of five usually accepted. It is an important and growing subject.

Dr. Stephenson's list of 350 cases, major cases, is a very splendid one, and one of such diversity as to testify very eloquently to the fact that he has had a sufficiently large experience to make this anesthesia nearly 100 per cent perfect in each case. Local anesthesia is pretty nearly a failure unless it is nearly 100 per cent perfect anesthesia. Among the indications I still have not covered in my work, the whole field of local and regional anesthesia. I find it is rather difficult on private cases to acquire the experience that one must necessarily have to be successful with this work. Experience on the cadaver is so entirely different from experience with the same outfit on the living subject, that is harboring a local disease, that it is pretty hard to translate your experience from the dissecting room into successful experience in the operating room.

In the handling of local anesthesia few of us are equipped as we ought to be. I don't know of a hospital here where there is a room specially equipped for the handling of local anesthetic cases. The cushion on the table, the arrangement of the table for table-tilting and for easy handling of the patient are not to be found. However, the simplest apparatus is the best, I believe.

Another thing that I mentioned before is that the solutions have to be handled nearly 100 per cent perfectly and then a great many of the objections are removed. A vitally important thing is, that the patient must be prepared mentally as well as physically for the ordeal. Patients who have associated with others who have undergone local anesthetic operations will be more easily handled than those who have not been associated with it. To some patients it is news that a major operation can so be done. Such patients are not going to be educated by a short talk. You must spend some time on them. It is largely a matter of education.

Not long ago I tried to operate on a patient for acute gall bladder condition. She would cry out at a touch of my finger making, of course, any operation under local anesthesia absolutely impossible. The patient's mind was not prepared for the ordeal. She made up her mind that we were going to cause great pain and she wouldn't be handled at all. Such cases

must be either thoroughly narcotized first which is really a narco-local and not a local anesthesia, or you can't handle them. The same patient, after she had been introduced to people who had had local anesthesia and had gotten the idea thoroughly digested would perhaps have been a good subject.

I think that local anesthesia has a very broad field of usefulness and we are coming slowly to the realization of its limitations and its uses. It is of such importance, surely that all of us must be prepared in certain emergencies to use it.

A. J. Byson, Ashland: I regret the association was not ble to hear all contained in the paper on "Local Anaesthesia." The essayist was just getting to the interesting part. I wish he might have omitted the first half in order to have presented the second part; the most important, the technique.

However, all may read the entire paper later in "The Journal."

Those who have long since been "set in their way" of doing surgery, the question of Local Anaesthesia will not appeal to them so much. However, I am quite sure there are none of those kind in the Kentucky Association at the present time.

The technique, the important part, the essayist was, on account of time, compelled to leave out. Much of the technique is simple in many of the operative procedures; the opening of the abdomen anywhere is a comparatively simple measure under local anaesthesia. The appendix can be dealt with in most instances rather easily. Some of the procedures are more or less difficult and somewhat formidable.

The essayist mentioned a series of major operative cases amounting to some three hundred and fifty. I have taken part in nearly one-half of those cases, he did not, however, report cases operated by myself and one other associate at our Clinic. (Ashland Clinic.)

The essayist mentioned a series of major operations at New York City at which time all cases operated by the three of us will be mentioned; a total of about five hundred.

I challenge any man doing surgery under general anaesthesia, taking cases as they come to give a death rate as low as we report in this series of five hundred cases. We contend there are patients that can be operated and saved under a local that could not have been saved any other way. Take a desperately ill patient, neglected, highly toxic, old, and accompanying Bright's Disease, etc., this patient can be operated under Local Anaesthesia, but if given a general, even gas, would probably be just enough additional, to prevent that patient's recovery.

John W. Price, Jr., Louisville: This is a timely subject and is brought to us with a large group of cases and I am sure that all of us who have heard it have been impressed by the wide range of the cases on which he has operated.

My own experience with local anesthesia ranges from gunshot wounds of the brain, fractures of the skull, thyroids, tumors of the breast, strangulated hernia, appendices and superficial tumors, infections and so forth. And for a number of years I have been increasing the use of local anesthesia in our clinic. At the City Hospital we have from time to time superficial tumors which we feel can very easily be done under local anesthesia and we have resorted to it in those cases.

In brain cases I rely almost exclusively upon local anesthesia. And I am sure that those of you who have had strangulated hernias, femoral hernias in the aged, will more than appreciate the use of this technique. Not so very long ago I had three old women to come in with strangulated femoral hernias and I don't believe any one of them could have survived a general anesthetic. A local anesthetic was used and all three of them recovered. Their ages range from 78 to 83.

M. Casper, Louisville: I think this is without a doubt one of the most important papers we will have the pleasure of hearing here. Local anesthesia has come to stay; it might be well to comment upon the fact that doctors themselves when they come for operations always want it done under local anesthesia. That is a pretty good indicator that it has come here to stay. The same is true of patients of higher intelligence. The chief trouble you will have in the local anesthesia of patients that are not intelligent are those that you can not establish their confidence; it is better not to begin with local anesthesia because you are sure to fail. One very important point in the instruction of the patient that I have found is to instruct them thoroughly between the difference of feeling and pain. As long as these patients feel what is going on they sometimes themselves will get it confused that they are not having sufficient of the local anesthetic applied, so we must thoroughly instruct them along that line, that they will be able to feel to a certain extent and feel some mechanical disturbance, for instance, heat and cold to a large extent and other things but they do not have actual pain. If you can get that point in their mind you will succeed when you'll thoroughly have the patient's confidence.

The doctor mentioned one other important point about psycho-anesthetists. I find if we are going to be successful with local anesthesia, that is the very best kind, you want the best qualified anesthetist of a hypnotist nature that you can

find, to have, at that patient's head, to console him, to talk to him and keep his mind off of himself that he may get along better. If you have no one to look after this and look after the comfort of the patient you are very apt to fail, and that is the reason, I think, and I always have said, that then is when you want the best anesthetist handy for a local anesthesia. On the other hand, there is no great objection to giving a little gas if your local anesthetic fails.

As the doctor shows in his analysis, he has had a very small percentage of failures. That is a very good indicator that you can get 100 per cent anesthesia with a local anesthetic. I think it is shown that many of these cases can be saved and more will be saved as this local anesthesia technique spreads.

J. G. Carpenter, Stanford: For a long time I knew that local anesthetic was a good thing. For years I have been using local anesthesia, not so extensively as the gentleman has said, but it has been satisfactory. It is a good thing for the country doctor and the more he applies it and uses it as it should be, the more success he will have. Often he can not have an anesthetic because with a general anesthesia he can not get the proper assistance. He can go ahead with his local anesthetic and accomplish things he could not do otherwise. I think it has come to stay and I am going to stand by it.

T. D. Goodman, Ashland: Being the psycho-anesthetist that Dr. Stephenson spoke of, I don't think it would be advisable to let the paper go undisputed. I have been associated with Dr. Stephenson for fifteen months. During that time practically all of his major operations have been done under local anesthesia.

It is my business to find out when the patient first enters the hospital their home surroundings. I find out the things they are most interested in, and I keep that in mind and talk to them while they are on the table. All the time that I am watching the blood pressure and pulse, and everything that goes for the well-being of the patient, I am talking to them along the line they are mostly interested in.

I have in mind right now a young girl that we had from Midway High School with acute appendicitis, the abdomen was so tender that she couldn't bear the pressure of the finger. She was brought in one night and we operated about seven o'clock. I took up Latin and got her interested in it. Dr. Stephenson did the injection all the way through, made his incision, took out the appendix and closed the abdomen and the girl was still waiting for the operation to be performed. She was honest in it. She had never known that the knife had touched her abdomen.

In our series of cases there are a number we could report where a general anesthesia was

absolutely contra-indicated and the patient was operated under local anesthesia and went out of the hospital well. I have in mind now a man that came in with a twenty pound splenic cyst that had been to five different specialists and on account of his cardionephritic condition he had been refused operation. I sat at the head of the table, followed the operation entirely through saw the man through his convalescence and had the pleasure of helping Dr. Stephenson check him up just a few days ago. The man came back weighing thirty-nine pounds more than when he left the hospital and almost perfect physically.

I regret more than anything else that Dr. Stephenson did not have time to read all of his paper, but I want to offer a suggestion, and that is that every man who is present now read this paper when it comes out in the JOURNAL and take it for exactly what he puts in it, because I know and can verify the fact that every operation reported in that paper, every technic has been followed out with the careful surveillance that he has given it.

J. W. Stephenson, Ashland, (Closing): Probably one of the most important things in regional or local anesthesia is home education on the so-called bad surgical risk. One of the doctors brought out the question of getting the people to see it. If you start out under regional anesthesia to operate your bad cases, you will gradually extend until you cover the entire field of surgery as we have done. Of course, it is necessary to have an accurate knowledge of surgical anatomy and an especially accurate knowledge of the sympathetic nervous system if one is to do splanchnic analgesia, not splanchnic anesthesia. It goes without saying it is necessary to have the correct knowledge of the cerebral spinal nervous system.

We operated a case a few days ago who entered the hospital a nervous wreck. She had been sick for six months. About five months ago she came to me and I made a diagnosis at that time of a chronic cholecystitis. Three months later she came to Dr. Lucas in Louisville and he verified my diagnosis. She returned home without an operation and one month later entered the hospital having severe hemorrhages from a duodenal ulcer. At the time of operation this patient was depleted and she was anemic and very nervous. Under posterior splanchnic analgesia, followed by an abdominal field-block we removed her appendix, dissected the duodenal ulcer, obliterated the pylorus, did a posterior no loop gastro-enterostomy and a cholecystectomy and the patient is recovering nicely.

In the field of traumatic surgery there is no one place in surgery that local anesthesia or regional anesthesia is more valuable. The traumatic surgeon can do any type of work that comes within his sphere under local or regional

anesthesia. Since we have had amputations, dislocations, brain injuries, in fact we have covered the entire field.

SIX CASES OF STERILITY SUCCESSFULLY TREATED BY ENDOCRINES.*

By ALICE N. PICKETT, Louisville.

The subject of this report is a little misleading. The first three cases reported are cases of sterility successfully treated by endocrines. In the second group of three, the cases were not treated primarily for sterility. They were women of endocrine unbalance who conceived during treatment by glandular products.

Mrs. J. L. P., age 26. Complaint: Sterility (married 4 years). Menstrual history negative, except for scanty flow. Wassermann negative. General history negative except for mental depression. Her husband stated he was concerned because of her constant brooding over her sterility.

Physical Examination: Short, heavy phlegmatic woman, slow in action and speech. Thyroid slightly enlarged. Blood pressure 120-80, pulse rate 72. Her chest and abdomen were negative. By pelvic examination the uterus was found to be infantile in type, the cervix long and narrow, with a pin point external os. A diagnosis of infantile uterus was made. She was given ovarian extract and corpus luteum tablets each two grains, three times a day with pituitary extract grains one, twice a day. Two months later she returned more depressed than ever because she had not conceived. At this time she was given ovarian extract and pituitary by mouth and an ampule of corpus luteum by hypodermic on alternate days for two consecutive months, with an occasional short cessation because of low blood pressure.

During this time she was put on a diet low in carbohydrate, and out-door exercise was insisted upon because of her obesity. She was advised to consult a surgeon. Dilatation and curettage was performed by Dr. E. S. Allen, rather reluctantly on his part and with no great hope and no promise of any improvement as to the sterility. March—Her endocrine treatment was continued over the next month, after which time she left the city for the summer. During the summer months she continued to take ovarian extract and pituitary substance by mouth. The following September, she conceived and was delivered in June.

You will note I have given Dr. Allen scant credit in this case. This is because I have found curettement and dilatation so many times ineffectual as a treatment for sterility. However, I do make amends by giving him the credit for the saving of this mother and her child when he successfully delivered her by Caesarean section.

The endocrine treatment previous to conception covered nine months.

Mrs. M. N., age 30. Her first visit to the office was made March 28, 1922.

Complaints: Sterility of 8 years standing. Amenorrhea for months at a time and scant menstrual flow.

She also was a large phlegmatic woman with an infantile uterus. Some weeks previous to this first visit, she had come to the clinic at the Louisville City Hospital, complaining of sterility. At this time her Wassermann was found to be negative. She was put on ovarian extract grains two, three times a day. Following her first office visit, she was instructed to take in addition to the ovarian extract, pituitary extract, grains one, three times a day. On two subsequent visits to the office, this the treatment was continued. Her blood pressure was at all times normal.

She left the city, one month after her first office consultation. She was advised to continue the treatment during the summer. She conceived in June and was delivered of a normal child the following March. After 8 years of sterility, this patient conceived, having been on endocrine treatment for only three months,—all the medication was given by mouth.

Mrs. R. R. J., September, 1921.

Complaints: Sterility 4 years standing.

Menstrual disturbances characterized by marked prostration and flooding the first day of flow.

Her menstrual history was as follows,—except that her mother had myxoedema. Her past history showed no serious illnesses, but an enlargement of the thyroid which developed at adolescence. She complained of vasomotor ataxia, excessive perspiration and tremor of her hands.

Her menstrual history was as follows,—a four weeks cycle, three days flow. Dysmenorrhea, flooding for the first day, severe headaches and most distressing lassitude.

On examination there were found an enlarged thyroid, marked tremor of her hands, vasomotor ataxia of the vessels of her throat and chest. Exaggerated patella reflexes. Blood pressure 140-90. Pulse 86, heart action too forceful.

*Read before the Jefferson County Medical Society.

A pelvic examination showed the uterus fixed in retroversion, any attempt at replacement producing pain. Her Wassermann was negative. No basal rate was done.

I made a diagnosis of overactive thyroid, accompanied by a disturbance of ovarian secretion. Her treatment consisted in ovarian extract tablets, grains 2, taken three times a day. Four months later I advised X-ray exposures to the thyroid. She received three series from February to April, 1922 by Drs. Keith and Keith. All this while she continued the use of ovarian tablets by mouth. Her menstrual pain became less. The flooding ceased altogether, the lassitude was less pronounced and the backache was not so troublesome. The blood pressure remained high, 145-150.

She conceived in October, 1922 and her baby was born in June, 1923. Her treatment previous to conception covered a period of thirteen months.

Mrs. S. T. N., age 23. First seen in September, 1921. Married one year.

Complaints: Delayed menstruation. The cycle being 5 to 3 weeks or more. Menorrhagia. Profound mental depression lasting 2 or 3 weeks at a time and always induced by menstruation. Inability to refrain from weeping almost constantly during these attacks and depression over sterility.

Physical Examination: A thin young woman showing signs of depression and apprehension. Her history was not especially significant. Her thyroid was negative. Her Wassermann, negative. Pubic hair showed masculine distribution. Uterus was small, turned slightly to the right and retroverted, and more or less fixed. Right ovary was prolapsed and sensitive. Left tube and ovary not palpable.

Diagnosis: I made a diagnosis of ovarian dysfunction. Naturally I was not disturbed over the sterility of a girl who had been married only one year, but knowing the family history, I was concerned because of the mental depression.

Treatment: Ovarian extract and corpus luteum, grains two were given three times a day. This treatment was continued with some improvement over a period of three months. At that time she was given, in addition to the ovarian, a tablet of pituitary, grains one, three times a day and corpus luteum was given by hypodermic on alternate days for twelve (12) doses. The latter was discontinued because of intense headaches. Later the pituitary was discontinued and she was given ovarian and corpus luteum each grains 5, three times a day. The treat-

ment previous to conception covered a period of 12 months. The progress of the case showed marked improvement. She attained a four week menstrual cycle and dysmenorrhea disappeared almost entirely, the amount of the flow lessened and the nervous and mental symptoms subsided.

She conceived in September, 1922. When she was three months pregnant the uterus was still retroverted and fixed. She delivered spontaneously a normal child at term.

Mrs. B. L. W. First seen March 6, 1922. Married 18 months. Never pregnant.

Complaints: Undue fatigue, drowsiness, obesity, enlargement of thyroid since adolescence, scanty menstruation, constipation.

Physical Examination: Large phlegmatic young woman. Hair distribution of masculine type. Thyroid much enlarged, apparently of the cystic type. Heart negative. Blood pressure 115-80, pulse 72. Pelvis, a retroverted uterus, fixed in pelvis. Wassermann negative, basal rate, not done.

Diagnosis: Deficient thyroid.

Treatment: Thyroid extract grains $1\frac{1}{2}$ twice a day. This was later gradually increased until she was taking 6 grains a day. For a few days before conception occurred, pituitary extract, grains one, was added three times a day.

Her treatment covered about 5 months. Her blood pressure remained low, the systolic ranging between 110 and 115. Her pulse rate lay between 70 and 80.

She lost weight, the drowsiness disappeared. Her endurance increased and the menstrual flow approached normal. Her bowels were regulated by the use of powdered agar and mineral oil.

She conceived in August (that is 5 months after the beginning of the treatment) and was delivered of a normal baby at term.

Mrs. M. W., age 35, September 3, 1922.

Complaints: Unpleasant symptoms of a premature menopause. Flow lessened to 2 days and very scant. She was having vasomotor disturbance and the nervous instability of menopause. Blood pressure was low and she was somewhat emaciated. Her Wassermann was negative.

She was put on 5 grains ovarian and 5 of corpus luteum, night and morning. One month later corpus luteum by mouth was discontinued and it was given by hypodermic twice a week. The first period at the beginning of the treatment showed some increase in flow. Her general condition improved

1 she gained a little in weight. The next two periods however became very scant. The treatment was continued until May, 1923,

when, much to my chagrin, I discovered that she was about four months pregnant. A pregnancy would have been my last wish for this patient because of her poor general health. She conceived after the 3rd month of treatment.

A macerated fetus was removed from the uterus at the end of the 5th month. Whether this conception was incidental or whether it was provoked by the treatment, I am not able to say.

She had had 5 children, the youngest was about 6 years old, and she had used no contraceptive methods.

DISCUSSIONS

John K. Freeman, Louisville: Dr. Pickett has introduced a very interesting subject, one which she has evidently studied very extensively, and what she has said ought to make us study a little more. Many patients who are sterile come to us for advice, and some of them are sad cases indeed. There are many women who wish they could become mothers and when they do naturally they consult their physician. We have not given this subject the thought it deserves.

Dr. Pickett states that in one of her cases the patient was referred to Dr. E. S. Allen who dilated the cervical canal and curetted the interior of the uterus. This may have had something to do with her subsequent pregnancy. A number of years ago, before we knew anything about pituitary extract, ovarian extract, thyroid extract, etc., I dilated and curetted the uterus in a great many cases and in the majority of instances the women became pregnant very promptly. Sometimes if the gynecologist will correct the existing mechanical difficulties gestation will follow. However, there are cases, analyze them as we please, study them thoroughly, with genital organs normal and in proper position, and still the women do not become pregnant. In such cases we have had the husbands under surveillance and systematically examined them without finding anything wrong. I recall that the late Dr. E. R. Palmer insisted that the man should be examined first and the woman interrogated later in every case of sterility.

As to administration of the endocrines: I must say that I have employed them very rarely along the lines mentioned by Dr. Pickett. However, I recall one young woman who had most profuse menorrhagia with a greatly enlarged uterus. I told the husband that I feared it would not be long before I would have to operate upon his wife because I thought she had a uterine fibroma. She was given one of Burroughs and Wellcome's preparations and about

twelve months later that young woman was delivered of a fine healthy baby. And if I remember correctly about fourteen months later she had another child. That was the first time I had used any of these glandular preparations in the treatment of uterine fibromata.

I recall another woman who had been examined by a number of other physicians who thought she had an infantile uterus. She was given the ordinary tonics, instructed in hygienic measures, etc., and informed that she would probably never be able to have a baby because she had an infantile uterus. Much to my surprise three years later I was called and delivered her of a fine baby. She was not given any of the endocrine preparations, but tonic medication was employed and she was told how to properly take care of herself.

These problems are very interesting and I am glad Dr. Pickett introduced the subject for discussion.

C. H. Harris, Louisville: The society is certainly indebted to Dr. Pickett for the thorough and scientific manner in which she has presented the subject. In cases of sterility it has always been my practice to investigate the man first. In order to obtain any reliable information it is necessary to examine the semen for spermatozoa. It will be remembered that some time since Dr. H. J. Farbach reported before this society a series of cases in which he succeeded in impregnating five out of six women by injecting semen into the uterus with a Valentine catheter. He examined the husband's semen and finding a certain number of live spermatozoa he injected two or three drops into the cervix and reported five successful results in six cases. I undertook later to do some work on this kind and injected the husband's semen into the cervix of his wife who had an infantile uterus, but the experiment was a failure.

Just how much good administration of the endocrines by mouth will do is problematical. It has been thought that the gastric secretion destroy largely the power of any glandular substances when given by mouth. We know, however, that good effects are sometimes secured from the administration of adrenalin by mouth. I have seldom noted any effect from pituitary extract when given by mouth, and have seen no effect from any of the other endocrines when administered in that way. An infantile uterus prevents pregnancy because of obstruction.

There are many causes of sterility. Anything that interferes with ciliary action of the endometrium will prevent spermatozoa from getting into the lumen of the Fallopian tubes where conception is supposed to occur. In the five cases in which Dr. Pickett's treatment was successful of course there was no tubal obstruc-

tion. Narrowing of the lumen of the Fallopian tube will prevent descent of the ovum; this is frequently the cause of sterility.

In the case of the woman upon whom Dr. Allen performed dilatation and curettment probably the trauma caused hyper-nutrition of the parts thereby increasing the size of the uterus as to destroy the cause of the sterility. Dr. Pickett failed to tell us why it became necessary to deliver this woman by Caesarean section.

Regardless of everything that has been said, I am still **skeptical** about the effect of any sort of glandular extracts when administered by mouth.

Alice Pickett, Louisville, (Closing): Three of these cases showed retroverted uteri, as well as endocrine disturbance. They refused surgical interference until after the endocrines were given a trial. I explained to each of them that miscarriages sometimes occurred in such cases, due to the inability of the uterus to lift out of the pelvis.

I am indebted to Dr. Harris for his emphasis of the fact that the causes of sterility are manifold. The object of this report is to call attention to those cases of sterility due to endocrine dysfunction. Obviously endocrine medication would be of use in cases of occlusion of the tubes or in those cases where the fault lies with the husband.

I have had no difficulty in getting the women to take the tablets. These women were all unhappy because of sterility or impaired health and their co-operation was excellent.

The indication for Caesarean Section in Case one, was cephalo-pelvic disproportion. During the last six weeks of the prenatal period it was found that the baby's head was not settling into the pelvis. The external measurements of the pelvis were excellent, but the birth canal was encroached upon by the thickness of the pelvic bones. The baby was unusually large. During a test of labor the head did not engage and a Caesarean Section was decided upon.

No vaginal examinations were made after the onset of labor. The patient made an uneventful recovery.

Operation for Stricture of Esophagus.—In this case King passed a Jackson medium esophagoscope from above and a small Mosher esophagoscope from below. The two esophagoscopes were brought into alignment under the fluoroscope. Long biting forceps were then pushed downward through the upper endoscope on to the stricture. By means of biting and pushing, under close observation through the fluoroscope, the forceps passed through the stricture into the mouth of the retrograde esophagoscope.

NERVOUS WOMEN. *

By JOHN J. MOREN, Louisville.

Mrs. C., aged 38, mother of three children. Chief complaints: nervousness, indigestion, "throbbing over body," dysmenorrhea, etc.

She gave a negative history during childhood and early life. Married at the age of about twenty. Two or three years later was operated upon for "laceration and hemorrhoids." No special illness or complaint until 1918, when she had influenza. No complications occurred, but since this infection she has not been well. Vague aches, sense of tire, restless nights occurred. Menstruation became more painful with more or less constant pelvic pains. Indigestion and limitation of diet and loss of flesh. Self-conscious, fears and anxiety. Circulation became "poor," cold hands and feet, palpitation and pseudo-angina appeared. She consulted her physician with the advice, "Oh, that is only nervousness, it will pass away." She sought aid from home remedies accepted the advice of friends to see another doctor. The teeth were extracted, still she complained. Has been "doctoring" for the last four or five years. Examination shows an individual who is not well, underweight, blood pressure 100, pulse rapid, no abnormal neurological findings. Blood shows moderate anemia. There is general psosis, and laceration of cervix.

This is a very short history of a type of patients that give all doctors concern. They are classed neurotic, but the particular case just reported should not be classed as such, as she is above the average in physique, and shows no signs of hereditary nerve weakness. She has been made a nervous woman by accident. In fact a woman who is below par—not well.

Collier (The Lancet) gives the following classification of nervous women: "(1) Those in which the condition is without any other basis than the hysterical state; (2) those in which the condition includes a delusion of the insane type; (3) those in which the natural physical state is one of continual vigilance, apprehension, and fear and attention as regards bodily health; and (4) those in which there is a primary and real bodily cause for the trouble. The three last named groups might overlap, but the hysterical group was, he submitted, quite distinct from the other groups. In his opinion the majority of the cases fell into the last group, in which a real cause existed."

It is not my intention to include the typical hysterical or psychasthenic in the class

*Read before the Louisville Medico-Chirurgical Society.

under discussion as nervous women. Possibly a term used by one writer as "painful women" better describes them. Many patients present symptoms that are more or less typical, I may say diagnostic, of hysteria, neurasthenia or psychasthenia, but when their history is studied we find a physical rather than a nervous basis for their ailment. It is the wife, after assuming charge of the house, borne one or more children, carried the burdens, sorrows, and pleasures in their home. She talks little and thinks much. Dysmenorrhea, often hemorrhoids and constipation, with their long train of symptoms have added to her burdens. She has some acute infection or accident and then appear vague aches and pains. She has restless nights, often not going to sleep until late, or awakes at midnight. The symptoms vary from year to year; the old proverb, "one nail drives out the other," applies to her symptoms. Some show digestive, pelvic or cardiac syndromes, etc. No one symptom group is found in all cases. One symptom may appear in the foreground of her consciousness to be replaced by another made manifest by some accident or illness, hence the variability of the picture. She begins to take home remedies, then consults the family doctor. No relief is obtained. She goes to specialists, osteopaths, etc. The surgeon may consider operation. The eye man prescribes glasses; the stomach man recommends a corset to support the stomach; the chiropractor replaces a cervical vertebra; the scientists tell her to have faith; still she does not improve. She is considered a neurotic, treated as a hopeless nuisance, and the poor husband pays the bill in worry if not in cash. The majority show some physical basis, as ptosis with or without mechanical interference, dyspepsia, possibly gastric catarrh, colitis, questionable tonsils, or teeth, anemia, variable tenderness over the abdomen. Always more or less pelvic disorder, the pathology of which you as surgeons and practitioners can well surmise.

This history may extend over several years, the majority are between the ages of 30 and 45. Some whose makeup is not of the enduring kind break earlier than those who are endowed with strength and will to do. The robust are not exempt, but it is only reasonable to admit that the constitutionally inferior furnish the larger number. Some people are better armed with the philosophy of life to cope with and react to the many burdens in life. Another factor is how do they run away from a battle—Do they shake off cares or hold them within their own consciousness? Do they make burdens of everything?

Normally we are not conscious of our bodily functions, but should there be some constant source of irritation or fatigue of a reflex are resulting in diminished resistance and hyperexcitability it is reasonable to assume, and is a fact, that we will become conscious of sensations in the part or reflected to other parts of the body.

The onset of pain may follow some abnormal condition of a particular organ, and that condition may be removed, at least to the extent that there is no loss of function, but the patient still is conscious of sensation which under certain circumstances, ill health, anxiety from responsibility, fatigue, etc., cannot be dispelled from her consciousness. A misinterpretation of this sensation or pain causes it to be fixed in the mind of the patient.

The neurotic may suffer, but a large percentage of these patients are not nervous from heredity, they have been made so by accident, infection or metabolic disturbances. A supposed "neuro" was found to be suffering from chronic malaria. A fat neurotic woman was relieved by correcting an anemia—a blood picture resembling chlorosis. A "neuro" was relieved after removing pus tubes. Your opinion and Dr. Smith's opinion may differ as to the meaning of a neurotic.

There is no doubt that the majority of these women are of the nervous type, but their troubles are not wholly dependent upon such a temperament. Take the same individual and place her in different circumstances, I feel that she would not suffer. Many are victims of circumstances. Their burden is too heavy and accident or disease precipitate the so-called breakdown. There is much to be said and thought about the ductless glands and their part as cause or effect, and I leave this for discussion.

I feel that the condition is one of over-tire, under-nourishment, worry and emotions in an individual who unfortunately is not able to cope with a particular situation. First, there is some evidence of exhaustion—tire, then nerve irritability. With fatigue and irritability come emotional symptoms, self-inspection, self-consciousness, fear, and a train of symptoms purely nervous, which may overshadow the real trouble and lead to misinterpretation.

DIAGNOSIS.

The early history and environment are helpful clues. As an example, a young married woman had chorea between the age of 10 and 15. She has been nervous every since. Being an only child, naturally all attention was directed to her health. This

child was taught how to be nervous. She married, has a child, then she has nervousness, can't work, eat, or sleep; regardless, she looks well nourished and is interested in her sickness. She is a neurotic.

The type under discussion usually give a history of a healthy early life, often women who had made a success of life before the breakdown. The exact onset is uncertain, they gradually approach the point when they date it all to a "breakdown," which may mean anything from an emotional upset to a state of exhaustion.

There is no one symptom that is diagnostic. It is the history and mass of symptoms that really count. You as practitioners can appreciate this better than word explanation. These sick women tell you a long story, not inconsistent, but variable with their daily circumstances, ups and downs.

The physical signs are not striking, though the patient insists there must be something wrong with one or more organs. Fatigability and instability of function would account for most signs. The abdomen and pelvis, possibly, show most abnormally. One woman may bear children, have laceration and displacement, but never complain of her nerves. Why, her individual makeup and circumstances are not the same.

The error too frequently made is the undue importance attached to certain symptoms and interpreted as the cause of all the trouble. Conclusions should not be drawn until a sufficient observation has been made to note the variable tendency of the symptoms.

TREATMENT.

The care of these patients taxes the patience of everybody. It is natural to seek prompt relief, but such is impossible in these cases. It requires months. In most instances misinterpretation and impressions must be overcome. Even a change in mental attitude or viewpoint is essential. This frequently takes us to the home life where distress and depression prevail. Doubt and disappointment in the success of drugs and various therapeutic measures handicap the physician, consequently it becomes a question of management and directing rather than treatment. We all have our remedies of choice. Numerous measures can be used.

If I had to select two measures, my selection would be food and play. In the language of the auto repair man they need a general overhauling and new parts. The new parts cannot be supplied, and we have to do a general overhauling. Nothing will be accomplished until the patients eat more, digest it better, and not burn it so fast. All of

us have our preference or methods to accomplish this. My preference is a good cook, light work and some kind of play. The longer I practice neurology, the more confidence I place in iron. It is after all the best tonic. The least sedatives you give the better, the more you administer the more you have to prescribe. I use a digestive frequently, not only as an aid to digestion, but with the conviction that good upper tract digestion is the best so-called intestinal antiseptic.

I do not believe in giving much medicine for special symptoms. Effort is made to ignore or neglect them. It helps the patient to forget and realize that they are not important or serious.

There is no doubt in my mind but the endocrine glands have some part to play in these patients, and when better understood will be of even greater help than at present.

I do not advocate rest cures, unless circumstances require it. The average patient will feel far better at some acceptable diversion. Of course I do not mean to have these patients overtire, but I do feel that to gain resistance and endurance we must develop it by action.

I believe the greatest help can be given in the early stages. When the "breakdown" occurs is the time to institute measures to restore a tired woman. In many instances the advice of the family doctor is ignored; in others, circumstances practically prohibit. Still others follow the various cults, and later in life the physician is blamed. Let me remind you that at this stage we frequently overlook the past history and interpret symptoms as due to an acute process, as appendicitis, ulcer, etc. Appropriate treatment is instituted without success. The symptoms were only local manifestations of a general disorder.

The patient can be improved or cured at home. Trips to the various resorts are not essential. If they would use the same energy and money in making better circumstances at home they would improve. Some of the most miserable people I meet are those who cannot live at home. If they have money to spend and want to take a trip, let them go to a place where they can have a good time and forget.

Sensible psychotherapy is of great help. Most physicians are too busy or impatient with such procedures, but nothing relieves the feelings of apprehension and anxiety better than an understanding of their illness. They feel, or are conscious of many symptoms which are not accounted for from any apparent physical condition, their friends tell them they look well, hence an explanation of

why this palpitation, this throbbing, headache, etc., etc., satisfies them. If we do not afford them either mental or physical relief of these symptoms they will seek aid from someone else. I know no better procedure than rational or common sense psychotherapy mixed with patience. They must be convinced—satisfied.

As the majority present some symptoms that suggests surgery, the surgeon is frequently consulted. What surgical procedures should be done? My answer is, do that which is needed. "Witching up" kidneys, stomach, removing small cysts or fibroids, repairing cervical tears, clipping tonsils, and extracting teeth do not cure these people. In a large percentage such procedures do good, but it is hard to pick which will be of benefit. Therefore proceed cautiously, and promise only the removal of local pathology.

Cabot, in an article entitled "Those Painful Women" (Medical Clinics of North America, March, 1923) says: "In all these cases the pain complained of might have been due to organic lesion, and not rarely these people have heard enough in these days of the public discussions of private diseases to have a most accurate picture of the symptoms of many of the disorders to which their flesh might be heir. There has been and still is a considerable tendency to take the rather light-hearted view of go ahead; try it and see. Surgery is a trivial business, at least no harm will be done. But is this true? Certainly not. If one fact in this puzzling situation is more clear than another, it is that unsuccessful operations of this kind do not leave the patient as she was before. Not only is she not the same, but she is worse. Not only is she not relieved of her pain, but the fact of pain is more firmly driven home upon her consciousness.

Furthermore, we have, I think, overlooked the very definite effect of the trauma of modern surgery upon personality. I gravely doubt whether any important surgical operation ever leaves the patient with as sound a personality as he had before. If this be true or even partly true, it follows that in these folks with abnormally sensitive personalities and often abnormal personalities for greater damage will be done by surgical insult.

Surgical judgment and common sense cannot be used to a better advantage than in these cases. This statement applies equally to all branches of medicine.

If there is any form of surgery to be done, if possible allow the patient to recover to a point that she will be armed, able to adjust herself to surgical procedure. The reaction

or "comeback" will be more pleasing to the operator, and beneficial to the patient.

DISCUSSION.

W. E. Gardener, Louisville: Dr. Moren's paper is a very practical one and I am sure we agree with him in practically all the essentials. His contention that in the majority of cases of so-called nervous women there is usually some accident or exciting cause to begin with, is undoubtedly true. At the same time throughout his paper we can see the strain of an unstable background in most of these patients. The majority of them may have a very good hereditary, but in the particular individual there is often an unstable background to begin with, and then the exciting cause lowers resistance and the patient either continues to have pain or the memory of pain from some deciding accident or disease. There is no question but such patients become introspective, hyperæsthetic, and present many symptoms of true neuroses, and they frequently have a memory of pain which is very difficult to dispel.

As Dr. Moren said, it is difficult to take enough time and have the necessary patience with these individuals to allow them to relate their entire history and obtain all the evidence from their standpoint. That is one of the reasons why they so often reach the hands of quacks and the various so-called cults. As a class these patients may be easily imposed upon if the physician is not thoroughly honest in his dealings with them.

I agree with the essayist that the stress and strain of modern modes of living are important factors in these cases, and I believe we will find a higher percentage of so-called nervous women or painful women among the poorer classes than among the well-to-do. The latter class can take plenty of rest, recreation, diversion, etc., they are not subjected to the hardships and stress of life as poorer patients are.

Dr. Moren confined his paper principally to nervous women not presenting psychic symptoms. There are many borderline cases, the patients presenting signs of neurasthenia, or anxiety neurosis, and differentiation becomes difficult. We cannot always determine whether the nervous symptoms are primary or secondary. There is often a medical or surgical condition still present in many cases.

Cuthbert Thompson, Louisville: Dr. Moren has given us a splendid paper as he always does. I was glad to hear his definition of nervous women, excluding neurasthenia and hysteria. Are these patients absolutely normal before hand? They always remind me of shell-shock cases where formerly the patient seemed to be perfectly well, then something abnormal happens

and he goes into the state of invalidism. These cases resemble each other very much.

Dr. Moren says in one place that he does not advise these people to leave home, still he qualifies that by saying if they have money enough to travel let them go away. As a matter of fact a change of scene or change of environment in many cases does good.

After all we have to return to the original question of diagnosis: Were these people normal beforehand, if they were not neurasthenies or hysterics, then what is the cause? As a rule I believe there is some definite pathology in these cases, and if a careful examination is made some medical or surgical cause will be found. In many of these cases symptoms are mistaken for diseases and operations performed which have rendered no relief.

It is sometimes very difficult to draw a definite distinction between neurotics, hysterics and nervous women.

J. Rowan Morrison, Louisville: Dr. Moren has read a most interesting paper, but I think he has drawn his lines a little closer than the most of us can as to the types of nervous women.

Dr. Moren is correct about these women being painful,—they are painful to themselves, to their husbands, and to their doctors. The type Dr. Moren described are not people with obsessions or insane, they are perfectly sane individuals. They have something the matter with them, but we cannot always determine just what it is and give the proper relief. That is the greatest trouble in managing these cases. If we listen to all the things of which they complain we must conclude they have suffered many things from many doctors and have grown worse instead of better. I recall one woman in the psychopathic ward at the city hospital who had been subjected to twenty-eight different surgical operations, and she became very much offended with me because I would not agree to the removal of something else!

I believe there are just as many nervous women among the better as among the lower class. I have seen women with many children who complained of the symptoms Dr. Moren described. I have also seen such cases in women who had borne no children. Poor women sometimes complain of being so nervous they cannot attend to their duties, they visit their doctor repeatedly and worry the very life out of him, still all these patients are sane. I have seen women of the better class who had every opportunity to secure proper rest and recreation, but they were too busy trying to follow the frills of society, they think they are out of it if they take time to rest, they are worried to death if told to rest a few hours at intervals, they have no time to rest, they are going con-

stantly, and it is no wonder they become nervous wrecks, yet they are sane people.

Domestic difficulties are often responsible for nervous women. The husband may be a scurilous, pusillanimous villain, who is always making trouble. Take one of those women who had influenza in 1918, if she has a quarrelsome husband who claims whatever she does is wrong, of course she becomes nervous, she is sick and is made constantly worse. Many of these women have physical disease. On the other hand, there are some who have a neurotic background as stated by Dr. Gardner and Dr. Thompson. In such cases domestic troubles have much to do with the development of nervous symptoms. When such women have infections, shocks, etc., they get into a morbid state and they are difficult to manage. When women of this type come to me I make it a rule to talk with them a long time and get their complete history. If I am too busy they are asked to return another day when more time can be given them. I try to get their real idea as to what is the matter with them and ascertain the cause if possible. It may be imagination, finances, the husband, or real trouble. It is necessary to bring before the minds of these women that they are sick, but they are sick in such a way that no average doctor is going to be able to relieve them unless they change their viewpoint. We have to try and lead them to take a brighter view of things, to learn to play, to rest, to eat, to employ their minds in creating something worth while. Occupational therapy and proper rest are important. In this way it is possible to get the minds of these women working in the right direction. Another important item is food. We must reason with them and tell them they can drink milk as readily as they can water, have them drink a quart or two of milk and cream every day.

The endocrine system is important in nervous women. Sometimes when they complain of nervousness, dizziness, and other symptoms, it will be found that these manifestations are due purely to hyperthyroidism. Some women as they become older have peculiar wattles around the neck, disorders about the tongue, eyes, suffer from nervous apprehension, etc. By giving these women thyroid extract in proper dosage relief is often obtained.

The type of patients mentioned by Dr. Moren are sick people. We sometimes have to say to them: "Yes, you are sick, but your symptoms are entirely too numerous, you could not possibly have all the diseases your symptoms indicate and still be here, they are all right but they are like Rube Goldberg's Boobs, they do not mean what you think they do. By working carefully along the lines I have described I believe we

can save many of these nervous women from the various and sundry quacks and cults.

John Walker Moore, Louisville: In the type of case reported by Dr. Moren the patient was normal, with a good background and strong health all her life, until suddenly "knoeked off her feet" by an attack of influenza, then followed the vague manifestations he has described. She consulted many physicians, passed through the hands of several specialists, osteopaths, etc., and then applied to Dr. Moren for relief. Such a patient can hardly be classed as a neurotic. Where people are healthy up to a certain time and then develop the symptoms Dr. Moren has related, I believe the cause of the trouble is some form of focal infection.

We see many cases of this nature at the city hospital the majority of them in poor people. We find individuals who have been healthy and with a strong background who give a history such as Dr. Moren has described. As a rule we locate and remove the focus of infection, but it takes a long time to put them back on their feet. I believe many of these cases are overlooked because the first physician who sees the patient makes only a superficial examination.

Ben Carles Frazier, Louisville: Dr. Moren confined his remarks strictly to one type of case. The vague symptoms described may be due to infection or to many other things, including family troubles, children, husbands, etc. Many women have difficulty in adapting themselves to certain conditions and are constantly changing their minds. Most women who have not a bad heredity because of syphilis or some other disease, really have some definite pathology to account for the symptoms Dr. Moren described. However, these cases are not always simple, as there may be a great variety of causes. In people with low resistance, infection about the gall bladder, appendix, teeth, tonsils, etc., may account for the symptoms. On the other hand, domestic difficulties unduly prolonged may be the cause of real illness. I believe this is recognized by both general practitioners and neurologists generally.

As to the question of social status: I think the poorer class of people have these troubles just as often as the more affluent. Dr. Moren may not see them but many poor women who work hard, and those who have borne several children, often complain of symptoms such as have been described. Women who have children every twelve to fourteen months become so tired, nervous and run-down that their resistance is lowered to the point where these manifestations develop.

A girl came to my office this afternoon with jobbed hair and face painted. I thought she was seventeen or eighteen years old and understand

she works in a drug store. She said she was nineteen years of age. She complained of pain in her heart which she said had been present for about four months. She is married and has a child fourteen months old. Six months ago she again began menstruating but said her periods had been more or less irregular. Last month she did not menstruate and was nearly crazy fearing she was again pregnant. She told me she had taken everything recommended to bring on menstruation without result. Is it any wonder this girl had pain in her heart and a very much perturbed mental state? She has a young baby, her husband works only part of the time, and she has no one to care for the child. A girl nineteen years old nursing a baby of fourteen months and working to support herself, why should she not be sick? General practitioners see hundreds of cases like this.

Jewish women who have babies every twelve to sixteen months are the most nervous and tired-out people in the world. I have under observation now a woman who has been very sick and worried; she is of the type mentioned by Dr. Gardner, i.e., obsessed by fear; she has two children and every time one of them gets sick she has a nervous upset and cannot take care of them. The explanation is probably this: she was rather low-grade mentally and physically as a child. I have known and treated her for the last twenty years. Before the war she returned to the old country and saw two of her children starve to death during war times. She now has two children of her own and when the least thing gets the matter with them she becomes ill herself and has to go to bed. She is simply scared to death.

C. Skinner, Louisville: I have seen so-called nervous women among the well-to-do, and have also seen them among the poor. I rather take the middle grounds, I have seen more cases among the middle class. I believe the trouble is largely due to the social status of the individual, aside from domestic difficulties, early productive marriages, etc., as mentioned by Dr. Frazier. We see nervous women among the type who marry for money and miss it, they do not marry for love but purely because of infatuation or something else, and begin to have babies immediately, the earlier the marriage the earlier the baby as a rule.

The treatment of these cases is not entirely medical, it is partially physical, and may be surgical. Rest is important but cannot always be secured. Drugs do not accomplish very much, although tonics are useful. Many of these women do not eat enough, they do not sleep well, they are constantly on the go. All these factors contribute to increase the nervous symptoms and must be corrected. They are difficult cases to

handle and the treatment may have to be extended over many months.

Leon K. Baldauf, Louisville: I agree with Dr. Moore that in a number of cases of the character being discussed careful physical examinations have not been properly made. Dr. Moren does not include in his report cases bordering on hysteria or psychasthenia. I am impressed with the fact that in some of these cases the symptoms may be due to definite foci of infection. At the same time there is no question that at present we are rather over-doing the question of focal infection. Many teeth have been extracted, tonsils, appendices and gall bladders removed, and still the symptoms persist. I have seen a number of cases where all the teeth had been extracted, many of them apparently sound and should have remained. In these cases the examination was faulty the teeth not really being the cause of the trouble and some of the other organs were diseased. Where the patient has enjoyed normal health for years and suddenly develops symptoms such as described by Dr. Moren there is evidently some reason for it, and the trouble with most of the doctors is that their examinations are not complete. It is surprising, even at the present time, how many people visit the doctor's office and are supposed to be properly examined without their clothes being removed. In other words, examinations are not carefully made. There is always some reasons why an individual who has been apparently perfectly well suddenly develops symptoms.

One thing not mentioned thus far in the discussion seems to me of considerable importance: I recall a family in which every member is "cranky," they are not nervous, hysterical or neurasthenic, but they all are peculiar and always complaining of something. I believe this is due to intermarriage. There is no doubt that this is a very important factor. In the family mentioned cousins married cousins and every member of that family is forever complaining of vague symptoms, they always have something. They are wealthy people are perfectly able to employ as many servants as desired, still the mother maintains that she has to oversee everything including housecleaning, the garden, etc., that she is tired and overworked. I believe she has some gall bladder disturbance. The father and mother are first cousins and every member of the family is peculiar.

We know that foci of infection may give rise to peculiar symptoms, the focus may be in a single tooth, tonsils or somewhere else. I am aware that Dr. Moren referred in his paper mainly to cases where none of these infective foci are to be found; but we must remember that medicine is not an exact science by any means, and quite frequently foci of infection may

exist which cannot be discovered. There is much we do not know about medicine, and I often feel that we really know very little about it. There are probably many undiscovered sources of infection, which, could they be located, would immediately clarify the situation. One of the greatest difficulties is that even after making a careful examination we may still be practically helpless. There are undoubtedly many cases of the type described by Dr. Moren where the patients have not been given the benefit of as careful examination as they deserved. I believe it was Billings who said the greatest trouble with some physicians is not that they do not know enough, but they are not careful enough and not thorough enough.

John J. Moren, (Closing): In private practice my experience has been that the well-to-do or middle class furnishes the greatest number of so-called nervous women. We should draw a sharp line between the class of cases under discussion and the strictly hysterical or neurasthenic. The class referred to in my paper cannot be called neurotic, they are women made nervous by accident or disease, women who were apparently normal before the onset of their trouble. The majority of the cases I have encountered have been among the better class of people.

As to the cause of the manifestations described: Many of them have domestic troubles and are worried on that account. A young woman came to see me recently complaining of nervous symptoms for which no cause could be ascertained, and I asked her if she was happy at home. She tearfully admitted that she was having trouble with her husband. She was a troubled woman. A girl came to my office who had been treated several months for supposed dysmenorrhea and various other ailments. She complained of being nervous and sick. I could find nothing to account for her symptoms, and finally asked her whether she was happily situated. She broke down and cried and between sobs told me of the most complicated love affair. As a result I found myself advising her how to extricate herself from her peculiar amorous entanglements. She followed my advice and returned ten days later improved and very much elated. Family troubles and love affairs are of considerable importance as causative factors in the production of the nervous phenomena described in my paper.

Men are not entirely exempt from troubles of this kind. A man came to see me not long ago who gave a very interesting psychological history. Various things had occurred which caused him to question the faithfulness of his wife, and this had worried him until he had practically developed an obsession. Fortunately I was able to obtain from him a frank history of his troubles and reassured him that his suspicions

were probably wrong. As a result he finally said: "Doctor, you have done me more good than anybody else." I have seen him since and his nervous manifestations have continued to improve. This is not the group of cases, however, that I referred to in my paper.

The treatment of nervous women requires much time and patience. We must listen to their story and then form our own estimate as to the cause of the symptoms exhibited. As stated in the paper my selection of remedial measures would be food, tonic and diversion.

THE DIAGNOSIS OF GALL-BLADDER INFECTION AND ITS DIFFERENTIATION FROM GASTRIC AND DUODENAL ULCERS.*

By FRED W. RANKIN, Lexington.

Diagnosis is the interpretation of pathologic changes in terms of clinical symptoms. To make this interpretation accurate and afford a basis for intelligent treatment, a knowledge of the function of the affected organ as well as the pathology taking place is essential. The biliary passages and liver have furnished a fruitful field for experimental research which in many instances has culminated in valuable contributions to scientific knowledge. Valuable data from the work of Whipple and Smith on the bile salt metabolism, and Mann, Bollman and McGath on the physiology of the biliary passages have marked brilliant achievements in this field. Some of their work has been so spectacular and productive that it seems likely to change many of our ideas on the production of bile pigments and bile salts as well as their places in physiology. The work of Wilensky and Rothchild on cholesterol metabolism as well as the liver function test worked out by Rosenfield and Schneiders have a direct bearing upon operative procedures, end results and prognosis, in the treatment of lesions of the biliary passages. Rous and McMasters, and Mann and his co-workers and many other experimental surgeons have labored productively toward the establishment of a more definite function for the gall-bladder.

Anatomically the gall-bladder which is an elastic bag situated in the midst of semi-dilatable ducts does dilate and perhaps act as a receptacle for a part of the biliary secretion when it is not essential to digestion. It is well known that bile is not injected into it as frequently as is necessary during the digestive

process. Perhaps the tension bulb function of the liver is a secondary one, as the capacity of the gall-bladder compared to the total output of bile in twenty-four hours would argue. It seems fairly well established that the gall-bladder has an absorptive function taking out of the bile certain elements during the temporary stasis in the viscus. It has been definitely proved that it is a bile flow regulator and that it possesses a secretory function has been surmised. Certain it is, that the gall-bladder acts as an agent in the power of concentration of bile and thickening it by the addition of mucus. That it is a mechanism for the regulation of intra-ductal and hepatic pressure is believed; that the gall-bladder itself acts as a focus of infection in the biliary system seems to have been proved conclusively. The avenues of infection to the gall-bladder are by way of the blood stream, by way of the duodenum through the common and cystic ducts, from the intestinal tract through the portal vein, and through the liver and down the hepatic ducts, or through the lymphatics in and around the common bile duct to the duodenum. Deaver believes that the gall-bladder once infected continues to re-infect itself and produces infection in the neighboring organs. An infected bile he believes permits infection of the mucous membrane of the gall-bladder from which the lymphatics pick up the bacteria and spread them into the liver which excretes them and re-infects the gall-bladder. A logical corollary is that the removal of the gall-bladder accomplishes a break in this vicious circle. Whether one accepts the hematogenous or lymphogenous theory of infection, the end result is much the same as regards the pathology of the organ. Cholecystitis alone does not exist. The gall-stone is merely an evidence of biliary infection. Cholecystitis has been proven by Graham and Heyd and others to be associated in almost every instance with hepatitis and frequently cholangitis and pancreatitis. In a large series of cases of cholecystitis we removed portions of the liver adjacent to the gall-bladder and in every instance our conclusions were identical with those of these observers. It is not an infrequent happening to find associated subacute or chronic appendicitis and cholecystitis with cholelithiasis, or subacute appendicitis with a duodenal or gastric ulcer, or indeed all three lesions in a single individual. It is not beyond the realm of possibility that the most frequent focus of abdominal infection is the appendix, if we exclude the teeth, tonsils and upper respiratory passages. The anatomical arrangement of the viscera of the upper right quadrant places the pyloric end of the stomach, the duodenum, the gall-bladder, the com-

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mon duct, the head of the pancreas, the right kidney, and not infrequently a retro-cecal appendix in such juxtaposition that identification of infection in any one of the named organs is not infrequently difficult and occasionally impossible. The fact that multiple lesions frequently occur but adds to the difficulty. In the acute lesions of the biliary tract which are fulminating in character and demand immediate intervention, the diagnosis is usually clear and not easily confused with acute lesions of the stomach or duodenum. Obstructive or gangrenous cholecystitis or perforating gastric or duodenal ulcer are so exceedingly active in their symptomatology that even if there is a confusion as to the exact location of the lesion the recognition of the necessary intervention is not delayed. However, it is in the chronic infections of both the biliary passages and the stomach and duodenum that the greatest tax upon the clinical skill as well as the laboratory facilities, even though supported by modern laboratory, is observed. Elaboration of laboratory facilities and specialization have undoubtedly brought about an increase in the percentage of accurate diagnoses in chronic lesions of many intra-abdominal organs. In the infections of the biliary tract a careful history together with a painstaking physical examination and an evaluation of the subjective and objective symptoms far surpass in accuracy any laboratory tests at our command. On the other hand the reverse is true in lesions of the stomach and duodenum. The value of the X-ray in lesions of these latter organs is measured only in terms of the accuracy of interpretation at the hands of any given roentgenologist. The most expert roentgenologists make a positive diagnosis proven at operation in at least ninety-five per cent of the stomach and duodenal lesions. This has not been found true in the lesions of the biliary tract.

Carman in studying more than two thousand cases was able to demonstrate disease in only about forty-five per cent of those proven pathologic by operation. He could demonstrate stones in only thirty-eight per cent in which the stones were removed at the operating table. It is likely that this percentage of positive reports is higher than that of the average well trained radiologist and consequently this particular maneuver requires improvement either in technique or interpretation before it will be of maximum value as a routine examination. While a positive report of shadows of gall-stones or gall-bladder is conclusive evidence, a negative report is valueless. Graham, Copher and Cole recently have evolved a technique which I believe is the most valuable laboratory diagnostic

method advocated at present for the interpretation of symptoms of biliary disease. By the administration of the sodium salt of tetrabromphenolphthalein in quantities of thirty-five to forty cubic centimeters they have been able to elicit a high percentage of positively proven pathologic gall-bladders. The interpretation of this method depends upon the fact that this salt is excreted in the bile and consequently a shadow of the gall-bladder is interpreted from this plate. The normal gall-bladder begins to show a shadow from three and one-half to five hours after the injection of the salt, but has a tendency to change in size, its heaviest shadow being found about at the end of twenty-four hours. It should be empty at the end of forty-eight hours. Pathologic gall-bladders do not cast as heavy a shadow as normal ones. The elasticity of the gall-bladder is shown by the larger shadows upon serial plates and upon this element largely depends the diagnosis. In a small series of cases we have found this of sufficient value to continue its use.

In 1919 Lyons developed a method for collecting bile from the duodenum for study macroscopically, microscopically, and culturally. He felt that he was able to segregate the bile from the common duct, the hepatic duct and the gall-bladder. The fact that the sphincter of Oddi was relaxed by the application of sodium sulphate to the duodenal mucous membrane, as Meltzer called attention to, encouraged the belief that this segregation of the bile was possible. While many observers confirm Lyons' work in detail, time and multiple applications of the test at the hands of many clinicians have dulled the enthusiasm in many quarters as to its value as a diagnostic method. Fitz in working with a series of seventy-four cases in which the bile was obtained at operation, reached the conclusion that in the main, specimens thus obtained were disappointing. While certain data was accurate and definite there was too great a variation in the individual specimens studied to arrive at any but very general conclusions, and he failed to corroborate satisfactorily the data thus obtained with the clinical and operative findings. Hartman, Dowden, Luckett, and Bassler and many others, while believing that the test has a value are unwilling to conceive the wide range of possibilities first believed to be within its scope, and it is yet to be decided just how valuable its application is.

In the instance of gastric and duodenal disease, laboratory data amplified by the X-ray is accurate in the vast majority of cases. The history, however, of both gall-bladder disease and ulcer is so characteristic in at least three-fourths of the cases that it is

familiar to all of you and I will not review it except to touch on certain symptoms which I believe are of maximum importance. Both conditions revolve around the syndrome of gastric symptoms misnamed "dyspepsia" of which the three most important are: pain, gas, and vomiting, which recur chronically but are grouped differently. The history of a typical duodenal ulcer is so characteristic that Moynihan avers that its recognition may be made by correspondence. The usual occurrence in young individuals between twenty-five and forty years, the periodicity of the pain and its relief by food, the night pain in a large percentage of cases, the short attacks which frequently get sharper and between which good health and good appetite is the rule, and the characteristic "Soda eater," all point to this lesion so strongly that one could scarcely mistake a typical case even without verification by the X-ray. In this connection it should be noted that the location of the ulcer tends to influence its symptoms. A high gastric ulcer gives quicker pain and higher acidity than duodenal ulcer. Hemorrhage occurs more often in ulcer on the gastric side of the pylorus than on the duodenal side. Relief is obtained in gastric ulcers by posture and pressure. The course of ulcers high on the gastric curvature is shorter and recurs more frequently than is the case in the duodenal ulcer. It must be remembered that eleven per cent of gastric ulcers are also associated with duodenal ulcer and that about two per cent of cases having duodenal ulcer also have a concurrent gastric lesion. The vomiting associated with duodenal ulcer means obstruction; associated with gastric ulcer it means a break in the gastric peristalsis producing spasm of the pylorus, and in gall-bladder disease reflex pyloro-spasm concurrent with vomiting is characteristic. The use of the Ewald test meal in the diagnosis of gastric and duodenal lesions has been largely replaced by the more valuable fractional meal of Rehfuess. The wide variation in the acid contents of the diseased stomach or duodenum makes this information of less value than most other laboratory tests. So often one sees acids in carcinomatous cases, low acidity in ulcer cases, and other such variations of the expected rule that except for the diagnosis of obstruction we believe the use of the gastric test meal is of limited value. The history of cholecystitis and cholelithiasis differ somewhat. The symptoms are usually milder in the cholecystitis cases with the gastric disturbance more prominent than the pain, but not infrequently are they associated, with characteristic sharp attacks of pain in the upper right quadrant radiating to the epigastrium and to the back

and shoulder, which we are accustomed to associate with cholelithiasis. Cholecystitis and cholelithiasis attacks come on suddenly without any warning, and cease as suddenly even during the height of an attack. The spasm of the diaphragm is marked and the reflex spasm of the pylorus is responsible for much of the pain. The character of the vomiting associated with each type of condition is valuable in the differentiation of diagnosis. Food ease in duodenal ulcer as opposed to distress in making a diagnosis of gall-stones is worthy of note. Most frequently the gall-bladder attacks are precipitated by some particular type of food, usually carbohydrate or some coarse food such as cabbage or apples. Gas and distress accompany both conditions but differ markedly in the characteristics. Most frequently a hypodermic of morphine is required for the relief of gall-stone attacks. Rarely is this indicated in duodenal ulcers except in the acute perforating type where the pain is comparable to that of renal colic. The fact that the incidence of gall-bladder infection and ulcer is so different in the two sexes is of itself an important diagnostic point. Gall-bladder disease is found in approximately four women to the one man. Ulcers of the stomach or duodenum are found in approximately three men to one woman. In women the physiologic changes which take place in the blood and in the liver during pregnancy perhaps account in a large measure for the predominance of gall-stones in the female sex. Certain it is, a great many primary attacks are noted during pregnancy and with each succeeding pregnancy there is a tendency to recurrence.

There are two symptoms which are prominently associated; the first with the gall-bladder and the second with ulcer, which have been given undue prominence from the standpoint of diagnosis. They are: jaundice which occurs in twenty-five per cent of gall-bladder cases with or without stones, and hemorrhage which occurs in twenty-five per cent of ulcer cases. We should diagnose gall-bladder disease or ulcer without reference to either jaundice or hemorrhage. Jaundice when present in gall-bladder conditions may be due to so many causes extraneous to the biliary system, that one should be constantly on guard to locate its etiology. Jaundice due to stone obstruction to the common duct or to malignancy of the head of the pancreas is usually of a characteristic tint which of itself easily distinguishes the etiology. Courvoisiers law that the distended gall-bladder is the rule in distended from obstructive cholecystitis or common duct obstruction due to malignancy, and contracted in obstruction due to stone, holds good in about ninety per cent of cases.

The palpation of a gall-bladder which is not distended from obstructive cholecystitis or obstructive cholangitis is very difficult and uncertain. In an acutely inflamed gall-bladder the omentum and colon quickly adhere to the viscus forming a definite palpable mass, but the palpation of a chronic non-distended gall-bladder is usually most questionable, even in thin individuals. It is much easier to palpate a gall-bladder when the abdomen is not going to be explored. Numerous other well recognized symptoms come to our assistance in making a differential diagnosis and in the majority of cases where the history is clear cut and the attacks are characteristic, our attention is immediately directed to the viscus infected. When, however, we remember that only twenty per cent of patients, as Blackford has recently brought out, suffering from so-called dyspepsia have an organic lesion of the stomach, duodenum, or gall-bladder, and that in approximately fifty per cent of the cases having this organic lesion, there are associated lesions in other organs, we immediately recognize how difficult accurate diagnosis becomes. Occasionally where laboratory and clinical methods have failed an exploratory incision alone makes the diagnosis. That this particular procedure should be reduced to the minimum goes without saying. Laboratory methods by no means should be depreciated. On the other hand most of us are ardent advocates of the routine use of all laboratory methods which in any way assist us in arriving at a clinical diagnosis. Laboratory data is always highly desirable and corroborative but in the end it is evident that the most accurate diagnostic interpretation of pathology comes not by the use of any one means but by the correlation of the laboratory findings and a careful and painstaking anamnesis with a careful and exhaustive physical examination.

Influence of Placenta on Mammary Gland.—Philipp describes, among others, two cases in which fragments of placenta, size of a hazel or walnut, were inserted in the abdominal wall of women with carcinoma of the genitalia. In one woman, aged 42, twinges in the breasts and colostrum from both glands appeared the second day after the grafting. This condition persisted several weeks. True lactation did not occur. In another woman, aged 48, the implantation of placental tissue, from a three months' pregnancy, also caused twinges and secretion of colostrum. These cases confirm Halban's statement as to the stimulating action of the placenta on the mammary gland.

GALL BLADDER SHADOWS.*

CHARLES D. ENFIELD, Louisville.

Most obscure of common conditions, and most common of obscure disorders affecting the digestive mechanism, chronic cholecystitis—with or without stones, mild or severe, is at once the bane and the refuge of the diagnostician concerned with gastro-enterologic problems. The bane, because, so often suspected, the gall bladder is frequently so difficult to convict. The refuge, because, other and more easily detected disorders having been eliminated, it is fairly safe to accuse the gall bladder. Such an accusation, if followed through, will nearly always have the support of the pathologist, and usually that of the surgeon. A normal gall bladder, in an operating room, is almost as rare as a normal appendix, while in the pathological laboratory it is well nigh non-existent. McCarty (Radiology—February, 1924) reports seventeen normal gall bladders in a series of 5,000 examined by him.

Other common conditions calling attention to the right upper quadrant, or less specifically, to the upper digestive tract, are relatively much easier to diagnose. Gastric and duodenal ulcer, gastric cancer, pathology in the right upper urinary tract;—these are as a rule not too difficult to establish, or to disprove. And then comes the gall bladder! Gastric analysis, diagnostic gall bladder drainage, the various liver function tests, all give contradictory and usually rather unsatisfactory evidence. The physical examination is rarely more than suggestive—in the low grade chronic case. If the history is not absolutely typical, the diagnosis becomes difficult to establish unless the x-ray evidence is unexpectedly helpful, or unless, as so often happens, one goes back to the gall bladder by a process of excluding every other likely thing. The fact that such a step is, on a percentage basis, very apt to prove right, does not by any means establish it as a scientific procedure.

When the sphere of roentgen diagnosis first extended beyond the early limitations of bone radiology, a surprising and satisfying degree of accuracy was early developed in diagnosis of calculi in the urinary tract. This fact led early workers to hope for an equal degree of facility in the demonstration of calculi in the gall bladder. These early efforts were, however, crowned with such poor success that roentgenography of the gall bladder was soon relegated to the list of unsatisfactory procedures from which little real information was to be expected.

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Consideration of the chemistry of gall stones offers a ready and adequate explanation of this bit of history. Cholesterol, a lipoid substance of less density than the average of the soft tissues of the body, forms from twenty to ninety per cent of gall stones. The almost pure cholesterol stone is of considerably less density than, for instance, water and is correspondingly transparent to the X-ray beam. If cholesterol then be considered the main chemical constituent of gall stones, any increased density which they may present to the X-ray must depend upon other chemical contents. Formerly the gall stones most frequently and regularly visualized on the X-ray plate were those containing a rather large proportion of phosphates, either as an incrustation on the surface of an old stone or as a constituent of the homogeneous body of the calculus. As calculi, rich in phosphates, are relatively rare, sharp and clear visualization of gall stones was correspondingly unusual. It is of historical interest that the X-ray visualization of biliary calculi is given only passing mention consisting of two sentences in the very comprehensive textbook of Sir Robert Knox, published in 1917.

At about this time George and Leonard of Boston, through various refinements of technique in preparation and actual radiography, as well as in interpretation, and Case and Cole particularly, in this country, were demonstrating an increasingly large number of stones; running, in the opinion of these workers, probably as high as forty per cent of the total—thus still contrasting very unfavorably with the ninety to ninety-five per cent of demonstrable urinary calculi.

In 1919 they (George and Leonard) published an epoch making book on the roentgen diagnosis of gall bladder disease in which they propounded the thesis that in many instances the gall bladder wall might be demonstrated on the X-ray film where the stones, even if the organ were filled with them, were entirely invisible on the best of films. In their opinion, the important and essential thing was demonstration of the outline of the gall bladder and they felt from a very wide experience with surgical confirmation the rule, that any gall bladder, the outline of which could be demonstrated on one or more of a series of films, was necessarily pathological; and, on the other hand, that a gall bladder whose outline could not be shown on a sufficient series of properly made roentgenograms was probably not pathological. They attached only secondary importance to the visualization or failure to visualize stone shadows. Their typical report on the cases with positive findings was: "Gall bladder disease with or without stones," and their published statistics

showed them to have been right in an amazingly large percentage of the cases which were surgically checked.

Coincidentally with this work, numerous authors were emphasizing the value of the indirect or secondary roentgen evidence of gall bladder disease. This evidence is obtained from the contour and performance of the gastro-intestinal tract when examined by the usual barium meal technique. Its foundations, lie in the two sequelae of cholecystitis as affecting the gastro-intestinal tract,—namely adhesions and extrinsic spasm. The adhesions express themselves to the roentgenologist in altered position and contour of the pylorus and duodenum when filled with barium as observed under the fluoroscope and on the films. Typical of this type of evidence is the fish hook type of stomach, the lower portion of which appears unexpectedly high in the right side of the abdomen giving the impression, as one follows it down from the fundus, of having started out to be a rather poised, relaxed stomach which had, however, been caught up and held in the upper right quadrant. In this stomach the incisura angularis is unusually deep and comes further up on the lesser curvature than normal. Although the normal pylorus and duodenum are not very freely movable on account of the duodenohepatic ligament, in this type of stomach there is a quite evident fixation or an entire absence of mobility as the organ is palpated under the fluorescent screen. Change of posture likewise fails to bring about a normal alteration of position in this portion of the stomach. Occasionally, but not often, unless the adhesions are very extensive, there is also a definite and permanent uniformity of outline.

Another indirect evidence of gall bladder disease quite highly thought of by roentgenologists is the frequently mentioned indentation of the duodenal bulb, observed in films of the barium filled upper tract. Less often a curved pressure indentation is noted in the lesser curvature border of the pyloric antrum. In view of recent evidence obtained by a method to be described later, it seems likely that these pressure defects, or indentations, are in fact usually caused by the fundus of the gall bladder pressing against the bulb or the pyloric antrum, but it does not seem probable that such pressure is an indication of gall bladder pathology, since the normal gall bladder is now known to undergo very marked alterations in size and shape, and may well in its distended state, exert pressure on the duodenum or pyloric antrum, with the patient in the prone position.

Spasm from irritation outside the gastrointestinal tract is classed as extrinsic and like-

wise exhibits certain differential characteristics which enable one to distinguish it from the intrinsic spasm caused by a lesion within the tract. The pylorus in these instances is observed to be shut down, very hypertonic, but nevertheless somewhat variable in outline throughout the examination. The duodenal bulb may most of the time be deformed by spastic contractions but will occasionally relax to a normal contour. As a final test, re-examination, with the patient thoroughly under the influence of atropin or belladonna, which quite completely relaxes extrinsic spasm but has no effect whatever upon the intrinsic types of spasm, should be insisted upon.

Roentgenologists, as a rule, felt up to 1924 that careful weighing of the evidence obtained from the direct films of the gall bladder region, together with that obtained from the barium meal examination, was giving them a very fair degree of accuracy in the diagnosis of chronic cholecystitis with or without stones. Surgical figures seemed to confirm this impression as a very large percentage of the gall bladder diagnosis of careful roentgenologists were being confirmed surgically. In February, 1924, however, Carman, McCarty and Camp of the Mayo Clinic, published a paper based on a very large amount of material which seemed to show that the visualized gall bladder was not by any means necessarily pathological; that the indirect evidence of gall bladder disease was not as reliable as others had felt and that adhesions sufficient to cause any interference whatever either with the function, contour or position of the pylorus and duodenum were much rarer than had been thought. Summarized, their conclusions are as follows:

1. In 169 cases in which a positive roentgen diagnosis of gall bladder disease had been made, 164 were found, on operation, to have diseased gall bladders, thus giving an apparent accuracy of ninety-seven per cent.

2. On the other hand, in 363 cases in which gall bladder lesions were found at operation, all of which had been examined roentgenologically only 164, or 45.1 per cent had been correctly diagnosed by the roentgenologist.

3. Of 241 cases reported negative by the roentgen ray department, only forty-two were considered normal by the surgeon.

4. Of 226 cases of gall stones found by the surgeon, ~~eighty-seven~~ (thirty-eight per cent) had been ~~reported~~ by the roentgenologist.

Altogether they consider the roentgen ray examination—of course in skilled hands, and carefully done—about fifty per cent accurate where the evidence is positive in character, and of practically no value if negative.

It should be added that these conclusions are based on the direct evidence only—not taking into much account the indirect signs that many workers consider very valuable indeed, and that this work was done prior to the introduction of the injection method about to be described. They may be taken as the perfectly fair conclusions of a roentgenologist who has been notoriously pessimistic about roentgen diagnosis of gall bladder disease, based on a technique adapted to the wholesale character of the work of a large clinic. It seems likely that an interested worker handling a smaller volume of material, and using refinements of technique impossible in such a large clinic, ought to better these figures materially, even without the aid of any inherently improved method of examination.

In February, 1924, Graham and Cole of St. Louis reported a new procedure for roentgen examination of the gall bladder which, in the opinion of many workers, is the greatest advance in roentgen diagnosis since the introduction of pyelography. The new technique was based on the already well known fact that certain halogen salts of phenolphthalein were excreted solely, or almost solely, through the bile. Working on laboratory animals these gentlemen endeavored to discover a salt which should be radiopaque to a high degree and at the same time non-toxic. Their first report was based upon the use of a calcium compound of tetrabromphenolphthalein. This solution was injected intravenously, following a technique which shall be described shortly, in 400 c. c. quantities. A subsequent and very happy refinement led to the employment of the sodium compound of the same dye in a much greater concentration so that the total solution to be administered was only about forty c. c. in volume.

The technique of administration of the drug as at present used is as follows: The dye, sodium tetrabromphenolphthalein, is obtained in ampoules containing 5.5 grams of the dry substance. For patients of 120 pounds weight, or over, the entire ampoule is used, its contents being dissolved in forty c.c. of distilled water, filtered through gauze, made up to forty-five c. c., and sterilized over a boiling water bath for 15 minutes. If the solution is filtered into a small Erlenmeyer flask it can be sterilized in the ordinary office sterilizer by simply standing the flask in the tray of the sterilizer. After sterilization the solution is allowed to cool, when it is ready for injection. It is injected intravenously into any convenient vein, in two doses of twenty c.c. each, the dose being given one-half hour apart.

The patient prepares for the injection by omitting breakfast. No other preparation is

necessary. Great care should be used that none of the solution gets outside the vein, as an infiltration will follow, with possible necrosis of tissue. On account of the similarity in color between the dye solution and the venous blood, the injection is a little 'mean' in that it is difficult to tell, by the ordinary method of drawing some blood back into the syringe, whether the needle is indeed in the vein. It has been suggested that the needle be introduced first, and some blood be allowed to flow out, before the filled syringe is connected to the hub of the needle. This would no doubt be an excellent precaution, though we have not found it necessary to employ it. The fluid should be injected quite slowly, taking five minutes for each twenty c. c. dose. Should the patient complain of vertigo, nausea or faintness during injection, it should be stopped, leaving the needle in the vein a few minutes until the symptoms clear up. These symptoms were the rule with the calcium preparation first used, and were very common with the sodium salt when it was being obtained in bulk. Since the 5.5 gram ampoules have been in use, however, there has been little disturbance of any kind. It seems that the oxidation of the dye, when exposed to air, was our cause of the toxic reaction, and this is largely avoided by using a fresh ampoule for each injection.

In the interval between the two injections the patient is allowed to move about, if he likes, or if not, to lie on the right side. About an hour after the second injection he is given twenty grains of sodium bicarb, and an equal amount every three hours thereafter until the examination is completed. This is done on the theoretical assumption that keeping the stomach contents alkaline will tend to prevent premature emptying of the gall bladder, through interference with the mechanism supposed to actuate the opening of the papilla. It seems questionable to this writer whether the administration of soda is of much value, but it was advocated by Graham and Cole, and certainly does no harm, so it has been continued through this series.

The first films are made four hours after injection it being assumed of course that a regular series has been made over the gall bladder area previous to the administration of the drug, as this method would not ordinarily be employed in cases which show definite positive shadows on simple direct examination. Films are made again at eight hours, thirty-two hours, and if the shadow was quite distinct at that time, again at forty-eight hours. During the first day, the patient has no food in the morning, nothing more than a glass of milk at noon, and only salads, fruits, or cereals at the evening meal. During the

second day the diet is likewise restricted to salads, fruits, and cereals. This is to prevent the reflex opening of the papilla caused by protein foods.

The technique of radiographic examination of the gall bladder, while of interest mainly to the roentgenologist, is extremely important if satisfactory results are to be obtained in the visualization of either the injected or the uninjected gall bladder. The essential photographic requirements are contrast and detail. To meet them the first essential is to persuade the patient to suspend respiration, absolutely, for the one or two seconds required for the individual exposure. The patient is instructed to stop breathing at the end of expiration, or merely to stop breathing at the word. With some patients a period of training is necessary, and even then some apparently quite intelligent individuals seem to find it impossible to suspend respiration. The patient is placed prone upon the table, a small cone is used on the tube stand and is lowered until it almost touches the back. The tube is tilted ten degrees toward the head of the table. We are using a very fine focus radiator tube, with ten milliamperes of current, and with a penetration corresponding to a spark gap of three and one-half to five inches. It is desirable on the preliminary series to have five or six films made with a slightly varying penetration, so we usually start with a four and one-half or five inch gap, and decrease the penetration slightly on each successive film, increasing the time of exposure to make up for the 'softer' rays. The series of films should cover the region from the tenth rib to the iliac crest on the right side, and should show distinctly the liver border, the lower ribs, the right half of the lumbar spine, and the right kidney. The darkroom technique must be good, and the intensifying screens must be quite perfect. Poorly made films of the uninjected gall bladder are usually worthless, and even with the more easily visualized, injected organ, good technique is necessary for the best results.

In some instances we have administered a barium meal, to outline the stomach, the morning of the second day. This does not interfere materially with the gall bladder examination as the twenty-four hour film is made before the meal is administered and the stomach is usually empty before the thirty-two hour film is made. Barium at this time in the hepatic flexure may interfere somewhat with showing the gall bladder shadow, but the two shadows should be easily distinguished. We have also tried to use the barium meal and the fluoroscope in an attempt to determine relations between the gall bladder, and the pylorus and duodenum, but without much satisfaction, as

the shadow of the filled gall bladder is not sufficiently dense to permit of clear visualization under the fluoroscope. Under certain circumstances, as for instance when gross adhesions from the gall bladder to the pylorus and duodenum are suspected films of the injected gall bladder and the barium filled stomach might be of much interest.

Our own series of injected gall bladder cases was started in March of this year, and contains only seventeen cases. Prior to this three cases were injected on the X-ray service at the City Hospital using the original calcium salt of the dye, without very marked success. The patients all had vertigo and nausea but no other untoward symptoms. Gall bladders did not show satisfactorily, however, though we were not able to determine why. Our first office cases were injected with the bulk sodium salt, and many of them had rather severe nausea and vomiting. More recently, using the 5.5 ampoules, opened and mixed just before injection, we have had very little trouble, some of the cases complaining of no nausea at all, although they were warned that it might occur. In one case, using the bulk sodium salt, we had something very like an anaphylactic reaction, with urticaria and dyspnoea, though there seemed to be no reasonable explanation for such an occurrence. It was a little alarming to the patient but passed off without mishap in a few minutes.

Intravenous injection of tetrabromphenolphthalein then offers a means of visualizing on X-ray films all gall bladders except those in which the cystic duct is occluded, and the dye-carrying bile cannot enter. Furthermore, the series of films, made at intervals over forty-eight hours, records the variations in size, shape and density which the organ undergoes. Interpretation of these shadows will not be thoroughly satisfactory until a very large number of cases have been so examined, and then operated or posted, and the operative or post-mortem findings compared with the findings on X-ray examination. As Graham and Cole had only some thirty cases at the time of their original report, and as only seven months have elapsed since that report such records are obviously not available.

It seems at the present time that we have some idea of the performance of a normal gall bladder after injection, from a fairly comprehensive experience, and some idea of the meaning of certain abnormalities in performance, by deduction from more or less insufficient material. The normal performance appears to be about as follows: the gall bladder shadow should begin to show distinctly at four or eight hours, it should reach a maximum at twenty-four hours or perhaps before, and should probably be getting definitely less dense

at thirty-two hours. The outline should be regular, that is there should be nothing ragged or uneven about it. The organ should vary quite markedly in size through the series, getting smaller as it becomes more dense. Failure to follow this normal course would suggest interference with function, structure, or both. In the first place, complete failure to visualize the gall bladder, if there is no evident reason for it, as very extreme thickness of the abdominal wall, would suggest occlusion of the cystic duct. Irregular ragged outline, and failure of the gall bladder to change in size during the examination, would suggest adhesions. Whether we are entitled to draw conclusions as to biliary stasis, lack of concentrating power, and other purely functional peculiarities we do not yet know.

This method apparently offers a definite advance in the visualization of gall stones, since it gives the opportunity of demonstrating pure or almost pure cholesterol stones as negative shadows, that is areas of lessened density in the radiopaque bile. Some of the more sanguine users of the method hope for an accuracy from it in the demonstration of gall stones comparable to that already existing in regard to urinary calculi.

The less frank types of gall bladder disease have long been among the most refractory problems of the diagnostician. The history, the laboratory findings, and the X-ray evidence were all apt to be inconclusive and unsatisfactory. It is apparent that the tetrabromphenolphthalein method is an addition of value to the diagnostic investigation of the type of case in which the older methods do not give sufficiently definite evidence to warrant surgical interference. It is without danger, it is no more uncomfortable, perhaps, than the usual gastro-intestinal barium meal examination, and it does give certain definite information which can be obtained in no other way. We should suggest as its sphere of usefulness, the cases in which there is a strong suspicion, on clinical grounds, of gall bladder disease with or without stones, and in which the ordinary type of X-ray examination has not offered satisfactory positive confirmatory evidence. It would also appear to be of definite value in ruling out the gall bladder, in obscure conditions of the upper abdomen, and in establishing, prior to operation, the patency or otherwise of the cystic duct, the functional ability of the gall bladder, and its freedom, or otherwise, from adhesions. It seems to the writer that it might often help in deciding between cholecystectomy and cholecystostomy where surgical relief of some sort is definitely indicated.

I wish to add the following footnote: "Up to the date of publication, we have examined fifty-five cases of suspected gall bladder disease by the tetra-brom-phenol-phthalein method. We have reduced the dose to 4.5 grams of the dye. In other respects, the technique remains the same. At present our reactions are practically confined to vasomotor disturbances. We now feel that other conditions besides cystic duct obstruction can prevent filling and indeed that failure to fill indicates in a general way, pathology in the liver or gall bladder or both.

DISCUSSION.

J. P. Keith, Louisville: I would like to say just one word. The Doctor has covered this subject very fully, but I wish to issue a note of warning as to the injection method of visualizing the gall bladder. I do not believe this is an office procedure. Anything that will cause the symptoms that are shown in perhaps a majority of the cases I do not believe should be an office procedure.

About two weeks ago at the American X-ray Society, Dr. Carmen of the Mayo Clinic reported 178 cases that he had injected. Out of these 178 cases, 39 cases had been operated at that time. Of these 39 patients that had been operated, a positive diagnosis had been made clinically of 38 per cent, so that narrows the field a great deal, and I do not believe that this should be taken as ordinary office procedure, nor do I believe that it should be undertaken in the present status of our knowledge except in rather rare cases, that is that every other means should be tried first before using this.

There is a hope among the profession at present that at some future date we will be able to visualize the gall bladder through the aid of some member of this group of salts given by the stomach. That, of course, is in the future, and something we are hoping for.

C. W. Cowden, Louisville: This is such a tremendous subject that it seems almost impossible to more than touch the important points. However, in a discussion of gall bladder disease or, as a matter of fact any disease of the upper abdomen, it is necessary for us to remember and review something of the embryology and etiology as well as the physiology in connection with these organs. We must remember that first of all the primitive gastrointestinal tract is nothing but a simple tube divided embryologically into the foregut, the mid-gut and the hind-gut. Swinging from the foregut we have the gall bladder, the biliary duct and system, the duodenum, the pancreas, and the stomach, and from

this segment is elaborated every one of the digestive enzymes. It is easy to see, therefore, why primarily we should have such an intimate connection between the diseases of these various organs.

Of the two functions which the stomach serves, that of motor power or the evacuating power of the stomach is pre-eminently more important than any other. A patient can go along for years and years with some secretory disturbance and without any disturbance of the motor power of the stomach, without any great discomfort. No matter how slight the disturbance of the motor function, however, he will soon call upon his physician for relief.

In determining the cause of infections of the biliary tract, it seems to me easier to understand if we will look upon the hepatic circulation as one unit and the enteric circulation as another unit, but forming one circle connected by the biliary tract. It means, therefore, that the enteric circulation goes to the liver, from the liver the biliary serves as a transit for the bile. It has been demonstrated that cholecystectomized humans and animals such as the horse that have no gall bladder get along just as well without any disturbance of health or the metabolic processes as those having gall bladders. Isn't it true that you have a focus of infection, maybe in the nose or the throat or the lungs, and it has been demonstrated that infections in this part of the body are more frequently found in the gall bladder than below where we have, of course, the bacteria fecalis, and so forth, from the lower intestines? We know we have a vicious circle starting probably in the intestine, reaching the liver, and if your liver cell is intact that probably normal bile is sent down through the gall bladder. If there is a disturbance in the lymphatic cells, the bile is not sterile; the bile we know is not bactericidal, the bile is bacteriostatic, and with the static power of the gall bladder to increase the volume of the bile that we will eventually get infection of the gall bladder itself is apparent.

I have to touch upon the question of treatment lightly. There is no known method of medical treatment with which I am familiar which will control or relieve a chronic infiltrative infection of the gall bladder. The only way that it can be done, the only way that gall bladders can be removed, is by surgery, thus destroying the vicious circle of intestine to liver, liver back to the duodenum through the transit system of the biliary ductile system.

Now the thing that concerns the medical man is infection and gall stones. Infection, as I have just said, can reach the gall bladder in a good many ways. When the gall bladder has been removed, that is only the end product of a wide pathology, and it is still up to the medi-

cal man to take part of the circle which is in the hepatic area and the enteric system and there should be a post-operative treatment for gall bladder just as there are post-operative treatments for gastric and duodenal ulcers.

Curran Pope, Louisville: Any method or means by which a better diagnosis can be made of a focal infection is always worthy of consideration. When we come to think that the particular region of which these papers treat is a region of exquisite balances between neural mechanisms that accelerate and retard the various physiological processes of that region, we can readily realize that if the lateral triangle of the neck is to the student hell's half acre, this is certainly hell's whole acre to the medical man when he enters it.

As to the source of infection, whether it be hematogenous or lymphogenous, I think there are cases where it is one and then the other, that is there is no particular difference in the result.

I believe firmly that any man who is doing clinical work with a staff is better able to make a diagnosis of these cases if he takes his own case history. There is a certain impression, there is a certain help that one gets from the peculiar and particular expressions and attitudes of the patient, himself or herself; this followed by a careful physical examination and supplemented by a group of evidences that are gradually growing up, evidences that with this newer test are direct in the gall bladder, that are indirect in the X-ray and that are collateral in the history and in the other conditions that are present, helps to enable one to make a diagnosis.

I have heard none of them so far mention one fact, and that is the frequency of colitis with gall bladder infection.

As we have very little time I wish to make only this last point, and that is that you may gather all the evidence together and have it in front of you and there is yet one point that is extremely essential, and that is the ability of the physician himself to so synthesize the particular conditions that he has found that he can probably make out an accurate mosaic of the condition that is present.

Fred Rankin, Lexington, (Closing): I would like to agree with Dr. Enfield that the value of this test with the improving technique that they are using (and all the roentgenologists are modifying it) is much higher. Graham recently at the American Surgical Society reported a number of X-ray cases which had been done by a new technique or some modification of his technique; I don't know just exactly the type of modification, but reactions occur fewer in number and less severe. It strikes me that anything that will give us direct evidence of a gall bladder infection in as high as 65 per cent of the cases

which are selected cases, it is true, but which are cases that we think of gall bladder disease, is a most valuable agent, and I believe firmly that this test is destined to be among the most important additions to the gall bladder diagnosis that has recently appeared.

Chas. D. Enfield, Louisville, (Closing): I have very little to add. Dr. Keith made a point which perhaps is a very good one, and that is that this is not ideally an office procedure. I don't think it is either, but not for the same reason that Dr. Keith says. I don't believe there is any danger of a serious reaction. I have a letter from Dr. Carman, written a week ago, in which he says that their cases have increased to 200. He says they have had a few reactions but nothing serious. He regards the technique as bothersome and rather a nuisance for the X-ray department rather than as particularly dangerous. He has made a modification in it which we have followed in the last three or four cases, reducing the amount of the dye to four grams instead of 5.5. The shadows are not quite as dense but they are amply dense for diagnosis.

We have also given the last three or four injections in one dose instead of two. This obviates the necessity of going into the vein twice and makes it a little more comfortable for the patient and much easier for the operator.

I don't think anybody can tell or will be able to tell for some months, perhaps for three or four years, what real value this has. Certainly it must appeal to all of us that any method which enables us to outline the gall bladder definitely and clearly so that there can be no question about it, so that the X-ray man doesn't have to ask the surgeon to use his imagination in seeing the shadow, is going to be productive of some good.

Inflammatory Carcinoma of Breast.—Analysis made by Lee and Tennebaum of twenty-eight cases seems to show that inflammatory carcinoma appears to be a distinct clinical phase of carcinoma of the breast. Generally, this type has been unrecognized, being frequently mistaken for other diseases of the breast. The inflammatory appearances are characteristic. This variety of mammary cancer shows no constant pathologic type. The most striking pathologic change is a wide invasion of dermal lymphatics by carcinoma. Bacteriologic and biochemical studies have failed to explain the inflammatory manifestations. The cases do badly if treated surgically. At present irradiation offers the only hope of palliation, diminishing the patient's suffering, and giving definite prolongation of life.

THE ACTION OF MUSCLE GROUPS IN THE PRODUCTION OF DEFORMITY RESULTING FROM FRACTURES.*

By GARLAND SHERRILL, Louisville.

There are certain fundamental factors participating in the production of the deformity resulting from fractures which must be thoroughly understood before the treatment of such an injury is undertaken.

Among these factors may be mentioned as of the first importance, the causative force. The character and direction of the violence to which the limb is subjected positively determines the character of the deformity in many instances. The most noticeable and characteristic examples of such typical deformities are Colles fracture of the radius and Pott's fracture of the fibula.

The typical fracture deformity described so accurately by Colles, of Dublin, 1814, that it is known by his name at the present time results from a fall in which the open hand receives the weight of the body. The lower end of the radius is driven against the carpus, and the cancellous end of the long bone is crushed, the lower extremity being forced backward and in some cases the upper fragment is driven into the lower. As the force of the fall continues a partial rotation of the fragment occurs which increases the deformity.

The entire deformity in such fracture results from the impact. The deformity persists because of the impaction and presents the characteristic silver fork appearance with a marked dorsal convexity from posterior displacement of the lower fragment. The resemblance to a dislocation of the wrist is so close that before Colles' description this injury was considered to be a dislocation of the wrist.

The fracture of the lower end of the radius resulting from the back kick of an automobile crank is similar but not identical to the one described by Colles. Sometimes when the force is applied in a similar direction on the palm the deformity may be identical, but if the crank strikes the wrist instead of the heel of the hand or above the wrist, the upper fragment may lie behind the lower.

A knowledge of the force, the manner in which it was applied and the direction of impact is important in the recognition of the particular deformity and the best method of reduction.

The best method of reduction of a typical Colles fracture consists in grasping the hand of the injured side as in shaking hands, carrying the hand backward to produce over-

extension of the wrist, which breaks up the impaction completely, then pulling the hand downward into complete flexion.

Cotton recommends a slight rotatory motion in the reduction to overcome the slight rotation of fragments sometimes observed.

The Assistant may shake hands with the patient making traction while the surgeon grasps the wrist with both hands and breaks up the impaction, molding the fragments into proper alignment.

Formerly it was believed that a pistol grip splint was necessary to retain the fragments in position, the assumption being that the deformity persisted because of the pull of the supinator longus causing a backward tilting of the lower fragment.

My experience leads to the conclusion that this rarely obtains and that in the larger number of cases the persistence of the deformity results from failure to release the impaction.

The supinator pull sometimes displaces the lower fragment in Barton's fracture, which is quite distinct from Colles, and involves the posterior tip of the articulating surface of the radius.

In cases of this type in which the deformity tends to persist, flexion of the elbow, or better, tenotomy of the supinator will obtain perfect approximation and fixation.

The force productive of a Pott's fracture is equally characteristic and also equally causative of the typical deformity described by Sir Percival Pott. This injury results either from fixation of the foot while the body is carried forcibly outward or from fixation of the body while the foot is carried forcibly out. The forced abduction of the foot produces a fracture of the fibula at the lower third in typical cases. If the force continues it next breaks off the tip of the inner malleolus or tears the internal ligament of the joint and in some cases results in a third line of fracture which involves the outer portion of the articulating surface of the tibia.

The violence causing this injury is solely the cause of the deformity, the contraction of the muscles simply holding the foot because of tonic contraction in the abnormal position.

To overcome this deformity complete inversion of the foot is necessary. Immediately after the injury this may be accomplished without an anesthetic. After the lapse of some time the reduction will be facilitated by an anesthetic.

The best appliance for holding the bones in the proper position is a Dupuytren's splint, a straight wooden splint three inches wide and long enough to extend from above the knee to at least three and a half or four inches below the sole of the foot. A layer of cotton covers this splint and on this is placed a tri-

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angular pad of cotton with the base downwards, at the ankle. Over this the foot is inverted and held by bandages passing over notches at the end of the splint. After a week or ten days the limb with the foot still in inversion may be put up in plaster of Paris. Some use plaster of Paris as a primary dressing, but the apposition cannot be so accurately controlled as it can when this is applied later.

The necessity for strong inversion cannot be emphasized too much. When this position has not been properly obtained, there is a marked tendency to flat foot and the point of pressure is badly applied in the ankle, making walking painful, the foot is in eversion, the patient walks with a limp and tires easily.

In putting up such a fracture in plaster the foot should be brought up to at least a right angle with the leg to prevent toe drop. Rarely will it be necessary to cut the tendon of Achilles to obtain this position. Partial flexion at the knee overcomes the pull of the gastrocnemius muscle.

The second factor of importance in the production of deformity after fracture is gravity. The weight of a broken extremity may be productive of considerable deformity when acting alone, but more often it is effective when acting in conjunction with the causative force and muscular contraction.

A fracture of the thigh or one of both bones of the leg may show considerable deformity from gravity. Gravity is often employed to overcome the deformity resulting from muscular contraction. This is particularly shown in the use of the Stromeier pillow in fractures of the shaft and surgical neck of the humerus and in conjunction with a Buck's extension of the limb for fracture of the thigh. By raising the foot of the bed the body by gravity makes a counter force which enables the Buck's extension to overcome the pull of the strong muscles of the thigh.

In fractures of the thigh all three factors enter into the production of the deformity, the violence, gravity and muscular contraction. Of these the latter is the most important.

Unless accurate anatomical knowledge as well as that rare thing, good common sense, and natural mechanical skill are employed in these cases the best results will not be obtained. Some surgeons who are unable to combine these three essentials but have a clean operative technique so that the open operation becomes safe are prone to rush too quickly into the open operation. There should be some real indication for open operation in simple fractures of the thigh. Loss of limb and even loss of life has occurred even in competent hands from infection from this source.

I wish to caution the profession not to rush into open operation when proper approximation and fixation can be obtained from closed methods of treatment properly applied with discrimination.

In fractures of the thigh at the upper extremity muscular attachments are very important both in causing deformity and in the corrective treatment of the deformity.

In fractures of the anatomical neck of the femur the causative force produces and maintains deformity by causing impaction. In the absence of impaction gravity causes part of the deformity while the contraction of the muscles produces the persisting deformity.

When the neck of the thigh is broken the external rotator muscles attached into the digital fossa rotate the thigh outward. They are assisted by the psoas and iliacus which have an exaggerated action when the fulcrum offered by the intact neck of the bone is lost.

The tensor vagina femoris is an internal rotator normally, but loses this power when the neck is broken.

There is always present in fracture of the femoral neck a noticeable relaxation of the fascia lata. Pressure above the neck readily elicits this very characteristic symptom. The anterior portions of the gluteus medius and the gluteus minimus also lose their power of internal rotation when the femoral neck is broken. The limb, therefore, lies helpless in external rotation except in cases of impaction. Usually even then external rotation is observed, but rarely internal rotation results from the impaction.

Royal Whitman first recommended that all impacted fractures of the femur be broken apart and the limb put up in extreme abduction. He utilized the Y-ligament of Bigelow to force the fragments into apposition, at the same time doing away with external rotation by relaxing the abductor group of muscles by the abduction and partial flexion of the thigh. At the same time a very slight flexion at the knee lessens the contraction of the longitudinal muscles of the thigh with the tendency to cause the lower fragment to over-ride the upper. This method of treatment has largely superseded the other methods. It is contra-indicated in the very aged, particularly those with circulatory or respiratory disease.

The use of sand bags and the simplest possible methods will often carry the aged through when close confinement or the use of plaster may result fatally.

In vigorous patients the open methods may sometimes be successfully employed.

Where the part is painful after replacement and in cases of non-union the fixation of the fragments with a nail is often quite satisfactory.

Albee's bone graft may be employed but it entails a more extended operation as well as additional risk.

In the shaft of the thigh the profession seems particularly to have overlooked the importance of muscular pull in the production of deformity. Not only is muscular contraction productive of displacement in fractures of the thigh, but it is also an important cause of fixation in abnormal position. Proper methods of relaxation will overcome such contractions and the resulting deformity, and after replacement in proper position the muscles may be used to hold the bones in position.

Fractures of the upper third show in nearly every instance the upper fragment flexed by the psoas and iliacus muscles and rotated strongly outward, while the lower fragment is pulled upward and inward by the adductor group and by the posterior femoral group.

These muscles are all overcome by flexion at the knee and at the hip. By flexion of the muscles replacement may be accomplished, which seems impossible by direct traction methods. After replacement when the fragments become locked in position the limb may in most cases be put up in the horizontal plane without displacing the fragments.

Undoubtedly the best method of handling fractures in this region in children is by the method of Hamilton. This consists of the application of lateral splints and suspension of the limb, the hips scarcely touching the bed. Muscular contraction is counteracted by the effect of gravity which overcomes shortening and permits the proper cleansing of the buttocks of the child by the nurse.

The same plan of treatment may be employed in adults if a strong Balkan frame is accessible.

Very often a double inclined plane becomes valuable in fractures at the upper and middle third of the thigh. Relaxation of muscles may be obtained by its use. When this is satisfactorily obtained methods of extension are for the most part unnecessary. These plans may be added as adjuvants to relaxation of muscles in some cases. Tenotomy of psoas and iliacus may be used in selected cases.

A most important group of fractures which are often badly treated are those in the lower third of the femur. Many of these cases are treated very improperly by continuous traction in the longitudinal plane. Others are equally badly treated in extension by plaster of Paris dressing.

The deformity in such cases consists in posterior displacement of the lower fragment by the pull of the gastrocnemius upon the upper and posterior surface of the condyles. This fragment lies in flexion with the leg while the

upper fragment over-rides and lies anterior to it. The shortening may be considerable.

The indications to be met are to relax the flexor muscles of the thigh by lifting the limb and flexing the leg and the thigh. Bending the knee with the thigh flexed fully relaxes all the muscles of the anterior and the posterior femoral groups. The relaxation overcomes the over-riding, enabling a very slight pull on the flexed leg in the direction of the shaft of the thigh to bring the ends of the fragments to the same level.

Full flexion of the knee permits the approximation of the fragments. A double inclined plane can then be used to hold the fragments in place.

We wish to make the contention that these simple methods properly employed will overcome deformity which many pounds of traction in the longitudinal axis, as so much in vogue, will not touch. The more muscular the patient the more difficult will be the approximation by traction methods and the greater the relaxation and ease of reduction by flexion methods.

The Thomas splint must assume a most important place in the treatment of these injuries and is particularly valuable when converted into the shape of a Sidney Smith or Hodgen's splint. Very rarely will ice tongs Steinman's pins or other open traction methods be needed. Buck's extension in a Hodgen's or modified Thomas splint is a useful aid, but should not be the basic treatment, but applied after muscular pull is overcome by proper flexion of the limb.

Frequently after proper replacement by flexion methods the limb can be carried into the straight position and a plaster cast applied without displacement as a primary definite method.

Fractures of the patella are often the result of muscular contraction, the very strong quadriceps tendon causing the bone to separate in the transverse direction. Slight violence is added in some cases. The separation of the fragments is largely the result of the contraction of the same tendon. Flexion of the thigh on the pelvis only partially reduces the separation.

In my opinion the best method of treating fracture of the patella is by open operation. Two factors are necessary for success, a perfect aseptic technique and the absence of any physical contra indication on the part of the patient.

The method giving the most universally favorable results is simple suturing of the quadriceps tendon after cleansing the joint of blood clots in the simplest possible manner. The knee is then fixed in plaster of Paris.

Flexion methods are particularly successful in overcoming deformity in the lower leg.

The deformity in fracture of the clavicle at the inner and middle thirds is due to muscular contraction and to the weight of the upper extremity, the shoulder dropping downward, forward and inward.

Simple common sense methods are the best for overcoming this deformity. The shoulder carried upward, backward and outward and the weight of the limb taken off allows approximation. If the sternomastoid pulls the inner fragment up a tenotomy overcomes this deformity. A number of methods meet the indication of bringing the shoulder upward, backward and outward. Simple recumbency with a pad between the shoulders will do this. This position is irksome and only the pride of youth and sex will permit the employment of this method. Sayre's method is good, but has some objections. Jones' shoulder cap is effective. The barrel stave is one of the best since it enables the patient to attend to his usual duties while the fragments are accurately kept in place.

Fractures at the greater tuberosity of the humerus usually show considerable deformity from the pull of the supra and infra spinatus muscles which carry the fragment away from the head. Abduction and external rotation of the humerus will usually bring the fragments into position. Jones' aeroplane splint will usually hold them in place. Tenotomy makes replacement easy. Occasionally the use of fixation by a nail or bone graft gives a very happy result.

In fractures of the surgical neck of the humerus the upper fragment is rotated outward and abducted to a slight degree, while the lower fragment is pulled inward by the pectoralis major and the latissimus dorsi, upward by the biceps, triceps and deltoid. The latter also tends to lift and pull the elbow away from the trunk.

The indications for treatment are abduction to overcome action of the deltoid, flexion at the elbow to overcome the contraction of the biceps and triceps, leverage outward to overcome the pectoralis and latissimus.

My experience leads to the conclusion that the Stromeier cushion is the most satisfactory method for handling this injury. This consists of a triangular or quadrilateral axillary pad extending down one-half inch below the elbow. The pad is fastened to the chest by adhesive tapes. The arm lies upon the flat surface of the splint in partial abduction and external rotation. Over the shoulder a plaster of Paris or felt shoulder cap is applied. A bandage fixes the arm and shoulder to the splint and chest. The same method

makes treatment of fractures of the shaft of the humerus simple. In oblique fractures the weight of the arm overcomes the overlapping. Very rarely a weight attached to the elbow is necessary.

An important measure is the character of sling employed. This should be applied at the wrist and should not reach to or include the elbow. If the elbow is included in the sling, bowing of the humerus will result and the weight of the arm as a counter force will be lost.

Fractures at the elbow are best treated in full flexion (Jones' position) except that of the olecranon, which, based on the same principle is best handled in extension so as to overcome the triceps pull. In rare instances this position fails to overcome the displacement of an epicondyle.

Fractures of one or both bones of the forearm are treated best when the muscular pull is properly estimated. The fragments must be set in apposition by manipulation, flexion and extension and after they are locked may be brought into the desired position and held there by proper splints. The interosseous space must be preserved in all cases of fracture of both bones in order to avoid fusion.

Action of the supinator brevis and longus, the pronator radii teres and pronator quadratus must be carefully considered in replacement and also in fixation methods.

Tenotomy is not employed with the frequency with which it is indicated. It may be made a most valuable adjuvant to any plan of procedure.

Again let me urge the impudence of discarding the simple methods herein described and the hasty adoption of open operation when such method is unnecessary. There is a sufficiently large number of cases in which such indication is clear and when this is present its employment is proper and wise.

Vaccination and Its Opponents—Stiner deals chiefly with the epidemiology of the recent smallpox epidemic in Switzerland (since 1921). It began in the German cantons in which vaccination is optional, and affected chiefly the young and the nonvaccinated: Only thirteen had been vaccinated among the 2,018 infected under the age of 20. The Swiss federal government ordered general vaccination, but the cantons failed to enforce it. The epidemic spread, but stopped at the borders of the canton of Freiburg, which has and enforces compulsory vaccination and revaccination. Three charts illustrate the coincidence of smallpox with the poorly vaccinated cantons. He publishes selected extracts from the literature of antivaccinationists—some of them "medical dadaists."

OPEN METHOD OF TREATMENT OF FRACTURES.*

By HORACE RIVERS, Paducah.

By "the operative treatment of fractures" is meant exposure of the seat of fracture by an incision—its reduction, and to maintain in apposition the fragments by the use of any of the various appliances which has been designed for that purpose. The broad indication for the open treatment of fractures is the inability to bring the fragments into such a position, and to hold them, as will give good functional results. For it is so considered by all men of experience that to obtain good results in any fracture, your apposition must be satisfactory and fixation of such a nature as will maintain this apposition. We do not intend to indicate that we recommend the operative treatment for fractures until conservative treatment has been given a thorough trial.

Gentlemen, today we stand at the dawn of a better day in the treatment of fractures. We are beginning to lay aside some of the long tried and often found wanting methods, and in selected cases are attaining results that were impossible without their open treatment. The argument that by the open treatment of a simple fracture we convert it into a compound fracture, does not carry the weight as formerly, for in this day of thorough asepsis and improved technique the operative risk is practically nil. We do not intend to say we would recommend that a surgeon rush in with the operative treatment early. Give the conservative procedure plenty of time, check the results of your manipulation and fixation with properly applied splints, with frequent X-ray examinations, and when you find that you cannot hold the fragments in proper position it is time to consider operative procedure. The indications for open operations are usually encountered in the following fractures:

First, When there is a displacement of fragments that, if not corrected, will give a bad functional result.

Second, Where manipulation will cause serious trauma to soft tissues.

Third, Where there are loose fragments of bone or soft tissue between the ends of the fractured bone.

Fourth, Where the fracture is multiple.

Fifth, Where the fracture is spiral and the fragments are rotated and cannot be maintained in proper position with external dressing.

Sixth, Where the fracture involves either nerves or blood vessels.

Seventh, In un-united fractures.

Eighth, In fractures complicated by dislocation and in close proximity to joints.

After determining that your patients fracture warrants operative interference, next determine their operability by ascertaining the extent of the bone injury, reaction from local damage, presence of acute or chronic diseases, presence of recent infection, or of old foci of infection, and if possible, their osteogenetic power. There are some functions which we believe should always be treated by operative procedure, provided the systemic condition warrants.

First, Fractures of the patella.

Second, Fractures of the olecranon with wide separation of the fragments.

Third, Oblique fractures of the femur, with soft tissue between ends of bone.

Fourth, Transverse fractures of femur with marked over-riding that cannot be reduced.

Fifth, Fracture of the surgical neck of humerus with the common displacement of upward, forward and inward. The overriding is irreducible and a functional result cannot otherwise be attained.

Sixth, Compound fractures when there is extensive injuries to the soft tissues.

Authorities agree that they are all contaminated at the time of accident and subsequent infection is to be expected. Whether this is true, or whether the infection is brought about by the drain or by leaving the wound open, I am unable to say. We do believe that a compound fracture can be so cleansed that it may be safely treated as a clean wound, and would recommend the following procedure: If possible, ascertain before operation the extent of injury to bone and soft parts. After careful cleaning site of operation, enlarge the skin wound sufficient to permit inspection. Do a thorough debridement of all devitalized tissue, don't be afraid of removing too much. We make more mistakes through the employment of conservative methods than through those of a radical nature. Check hemorrhage, repair muscles and tendons, clean wound with ether, close muscles and fascia with absorbable suture. Close skin with interrupted suture. Watch patient carefully. If infection found, one or two sutures are removed. If pus is found on examination, remove all sutures and open wound; treat as infected.

Gentlemen, I have briefly mentioned the main points to be determined in the various operative procedures in the treatment of fractures which have been developed by the master minds of the profession. In a paper

*Read before the Kentucky State Medical Association, Louisville, September 22-25 1924.

limited to fifteen minutes it is impossible to attempt to describe in detail the technique of any particular operative procedure.

In closing I wish to tender to the young surgeon and to the surgeon of limited experience this advice. Do not attempt this class of work unless you are absolutely sure of yourself, and unless you have access to a hospital where you are able to safe-guard your patient with every precaution that modern asepsis offer. This class of work should never be attempted by the cross road surgeon in private homes.

Report of case: S M. female, aged 10. History of fall from horse one week prior to admission. X-ray revealed separation of epiphysis at lower end of right humerus, the upper fragment displaced forward. Swelling of arm had about disappeared. Under anesthetic fragments placed in apposition and arm dressed in extreme flexion. At end of 24 hours arm found swollen and radial pulse very weak. Arm released from extreme flexion, and X-ray showed the displacement same as before dressing. Tried several dressings and was unable to hold the fragments in apposition. Three weeks after the injury made posterior incision extending four inches above elbow. Passed Kangaroo tendon around upper fragment, closed incision, bringing ends of Kangaroo tendon out on incision. Arm was dressed straight on narrow steel splint and the Kangaroo tendon was tied around this splint exerting sufficient pressure on the upper fragment to correct the forward dislocation. This dressing was removed in three weeks and passive movement was begun. Three months afterward use of elbow was practically normal with very little deformity.

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Unrecognized Hemorrhage Within Leg.—Larkin reports two cases of injury to the leg which show the possibility of losing enough blood within the upper leg to cause death. Death comes either instantaneously, following the rapid extravasation of blood, or as in the cases of slow oozing, a fatal ending may be prolonged for hours or even days. The cases indicate that the oozing may go far beyond the formation of a hematoma, and the blood may find its way unchecked along muscle and fascial planes and death ensue. The second case recorded shows that the bleeding may not occur as an ooze but as a swift outpouring of blood into the leg, followed quickly by death.

TREATMENT OF FRACTURES OF AND ABOUT JOINTS.*

By CHARLES A. VANCE, Lexington.

Fractures involving articular structures are among the most difficult bony lesions the surgeon is called upon to treat. Prior to the perfection of roentgenoscopic methods of examination, diagnostic accuracy in joint fractures was seldom possible; in consequence remedial measures were often grossly misapplied and more or less permanent deformity with limitation of functional capacity the logical outcome. In the majority of such instances the articular complications were considered and treated as partial or complete luxations.

Many of the earlier observers believed surgical invasion of joint cavities unjustifiable,—except in compound articular fractures with extensive integumental damage,—and when, under such circumstances, the joint was surgically opened infection often ensued, necessitating amputation later to conserve life, and even this sometimes failed. In justice to the older surgeons, however, he it said that the methods then in vogue were inadequate to insure perfect asepsis in operative technique. If the joint was not infected primarily, it usually became so secondarily. This is not intended as a criticism of the older surgeons; we owe much their pioneer efforts in this department of surgical endeavor.

From the comparative frequency with which articular complications have been recognized in recent years, during roentgenoscopic examinations of fractures occurring near joints, the inference is reasonable that many such cases were overlooked and untreated in former times. This observation is further emphasized by the improvement in ultimate results under newer methods of management, i. e., the absence of incapacitating deformity and restoration of joint mobility, following proper treatment of the lesion since diagnostic accuracy has become possible by the application of modern mechanical instruments of precision.

While all intra-articular fractures must be regarded as complicated surgical lesions, yet they may be nominally divided and classified along similar lines as fractures elsewhere, viz., (a) simple, (b) compound, (c) comminuted, and (d) accompanied by varying degrees of luxation of the implicated joint.

According to frequency of occurrence, the joints involved in fractures may be stated as: (1) the elbow, (2) the ankle, (3) the wrist, (4) the hip, (5) the shoulder, and (6) the knee. In the majority of instances where

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fracture has occurred near one of the joints mentioned, roentgen-ray investigation will reveal that the articular structures have also been damaged in greater or lesser degree as the result of violence which produced the fracture.

The importance of roentgenoscopic methods for verification or nullification of clinical findings in every type of fracture cannot be too strongly insisted upon; but this is especially applicable to lesions of and about joints. In no other way is it possible for the observer to determine with any degree of certainty the character and extent of the existing damage. It should be emphasized that several exposures be made at different angles to insure maximum accuracy. It is well-known that the roentgen-ray may exaggerate the lesion from one angle and minimize it from another.

To discuss the etiology of fractures of and about joints would necessitate consideration of the causation of fractures in general. Suffice it to say that traumatic agencies externally applied are the principal etiologic factors, such as crushing or twisting injuries of the elbow, wrist and ankle, more rarely of the knee, hip and shoulder. Gunshot wounds may also produce serious comminuted fractures of and about various joints. Many injuries of this type were observed during the late World War, but time forbids their discussion.

The clinical hazards attending intra-articular fractures are manifold. Even apparently simple lesions possess a peculiar sinister significance, because it may sometimes be impossible to determine whether permanent damage has been inflicted upon the delicate joint mechanism. No prediction can be made as to the possible extent of subsequent deformity or limitation of functional capacity. In complicated lesions,—compound or comminuted fractures, luxations, etc.,—infection with its attendant dangers may be unavoidable. Permanent ankylosis may result from deposition of inflammatory exudate or excess callus formation. Septicemia may supervene and fatality ensue despite prompt amputation.

The infinite variety of traumatic joint lesions precludes accurate standardization of surgical therapeutics. The remedial measures must always be modified to meet individual indications. In deciding upon the treatment to be adopted in any case, the surgeon must not only consider the extent of the injury but also the occupation of the patient and the result which will be the most desirable for him (Blake).

The essential prerequisites to ultimate success are: (a) avoidance of infection, (b) accurate apposition and maintenance of fragments, (c) prevention of deformity, (d) re-

storage of functional capacity, and (e) minimum impairment of joint mobility. Ashhurst aptly remarks that quite apart from the questions of axial deviation, or rotatory deformity, of shortening, and of lesions of the soft parts, there is the additional and all-important factor of impairment of joint motion. Unless accurate reduction is secured, there will be permanent disability in some degree, varying with the extent of persistent deformity.

Uncomplicated fractures near or even involving joints may often be successfully treated by the closed method. When the fragments can be properly adjusted and maintained in correct anatomic apposition by requisite external supporting devices, the closed method is the procedure of choice. In competent hands this plan of management has many times been effective in preventing disabling deformity and restoring normal function. Roentgenoscopic investigation at intervals after reposition of fragments will demonstrate the accuracy and permanency of anatomic alignment and also the progress of reparative processes.

In compound fractures and also in the majority of comminuted and otherwise complicated lesions of and about joints, where the fragments cannot be adjusted and maintained in anatomic apposition by the closed plan, the open method of treatment must be employed to secure functional restoration. It hardly seems necessary to repeat that open operation should be performed under the most rigid aseptic precautions, otherwise failure may be anticipated. If the surroundings are such that perfect asepsis cannot be secured and maintained during execution of the surgical procedure, open operation should not be undertaken. For obvious reasons compound fracture implicating a joint is the most dangerous type. Despite the utmost care infection may occur, and fatality ensue from septicemia even though amputation be performed. In this type of fracture the wounds must be immediately sterilized,—insofar as this may be possible,—the fragments approximated and maintained by internal fixation preferably by absorbable material, and the parts then temporarily immobilized. Some provision should be made for drainage in all infected cases. The present consensus of surgical opinion seems to favor leaving the wound open rather than attempting to secure adequate drainage by the insertion of tubes into the joint cavity.

In all compound fractures, as a precautionary measure, in the anticipation that infection by the bacillus tetani may have occurred, the patient should be given a prophylactic dose of antitetanic serum. "Experience indicates that tetanus may be prevented by the early administration of serum, whereas benefit is

less likely to accrue after the disease has developed."

When there are numerous minute fragments, due to extensive comminution in joint fractures, the smaller ones which are devitalized or denuded of periosteum, and which cannot be maintained in correct anatomic apposition, should be removed. The feature deserves repeated emphasis that in every joint fracture accurate coaptation and maintenance of reduction are imperative, otherwise prevention of deformity and restoration of function are impossible. In this connection Ashhurst states that he is so convinced of the necessity of securing accurate reduction in joint fractures, that he believes open operative reduction should be undertaken in the vast majority of cases where bloodless attempts fail to secure anatomic reposition.

Excess callus formation is especially undesirable in joint fractures and every effort should be made to prevent it. Exuberant callus may delay union, produce partial or complete ankylosis, with resulting deformity and limitation of function. By properly adjusting the fragments, with the least possible operative trauma, and maintaining anatomic alignment by external or internal methods of fixation, the production of callus can be minimized. In the majority of compound and comminuted joint fractures, some limitation of mobility and functional impairment may be reasonably expected under the most favorable circumstances. The patient or his family should always be informed of this possibility before surgical treatment is undertaken. The limb should be dressed in the position most favorable to secure maximum function.

Having secured accurate reposition and maintenance of fragments, and union having occurred with minimum callus formation, the practice of massage and gentle passive movements will materially assist in functional restoration. However, even gentle manipulation is contraindicated provided pain is thereby induced. The surgeon must be guided by individual indications, rather than formulated rules, in the management of every type of fracture. The interest of the patient may demand many modifications in technical details. Roentgenoscopic investigation at intervals will determine the progress of reparative processes and enable the surgeon to prognosticate whether the ultimate outcome will be favorable or otherwise.

RESUME.

(1) Fractures of and about joints are among the most difficult lesions the surgeon is called upon to treat:

(2) Because of the infinite variety of such

lesions surgical therapeutics is insusceptible of accurate standardization:

(3) In uncomplicated joint fractures correct anatomic reposition and maintenance of fragments is often possible by external fixation; when this can be accomplished the closed method of treatment should be utilized:

(4) In compound and otherwise complicated fractures of and about joints open operation with internal fixation of fragments must be employed:

(5) In competent hands prevention of disabling deformity and restoration of function may be reasonably expected in every joint fracture:

(6) The importance of roentgenoscopic examination as a diagnostic aid and therapeutic guide cannot be overestimated in the management of fractures.

TREATMENT OF HIP FRACTURES.*

By J. M. SALMON, Ashland.

For the purposes of the present discussion, a hip fracture may be defined as a solution of continuity of the femur involving that portion of the bone between the head and the base of the neck. Since the attachment of the capsule of the hip joint is not coincident with the inter-trochanteric line, more of the anterior and inferior portions of the neck are intra capsular than the posterior and superior portions. It is apparent, therefore, that fractures of the femoral neck are frequently intracapsular and extracapsular. For this reason Stimson's classification, fractures of the neck, or subcapital, and fractures of the base of the neck, is both sensible and sufficient.

The difficulties attending the treatment of hip fractures have long been appreciated. Briefly, these are as follows:

1. The fracture is in the largest joint of the body and callus formation is deficient, or possibly dissolved by synovial fluid (Cotton).

2. The line of direction of muscle pull is at right angle to the long axis of the cervix.

3. In elderly people osteogenesis is a slow and imperfect process.

4. Union is frequently prevented by interposition of capsular reflexion between the fragments.

5. The cross-section of the neck, which represents the area for approximation, is small.

6. The blood supply to the head and neck of the femur is poor and for this reason, atrophy and absorption are common after fracture.

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7. The period of immobilization is long and irksome. Weight bearing is not safe for a period of six months following fracture.

8. The immediate mortality in the aged is about ten per cent and there is grave danger of pneumonia and other serious complications.

It is generally conceded that the results obtained by the older methods of straight extension were unsatisfactory. Heubner² in analyzing 135 cases of pure fracture of the femoral neck at the Hildebrand Clinic from 1912 to 1921, found 74.8 per cent of healed cases. The period of observation varied from three months to thirty-two years.

Of sixteen cases, tabulated by Scudder³ which had been treated by traction and immobilization for varying periods, only two had functionally useful results.

The British Fracture Commission concluded that from 23 per cent to 28 per cent of cases under all forms of treatment, gave good results.

Of 112 cases studied by Walker from Bellevue Hospital records of 1906 and 1907 only fifteen cases, 13 per cent, recovered good function. Eggers⁵ finds 36.3 per cent of good results by conservative treatment in a study of 89 cases treated at Rostock University Clinic from 1913 to 1922.

Janeke⁶ analyzing 123 cases of fracture of the neck of the femur, found that 87 were able to walk with one or two canes; 27 could walk without canes and of these, 12 were impacted.

In many of these unsatisfactory reports it is probable that premature weight bearing contributed largely to the failure. It is evident, however, that until recently, the treatment of hip fractures has been far from satisfactory.

The chief disabilities in hip fracture have been loss of the normal angle of the neck and shaft (coxa vara) and non-union. The normal angle of the neck and shaft of the femur is about 127 degrees and any serious reduction of this angle will greatly limit abduction and impair the function of the hip.

In complete abduction of the femur the great trochanter is in apposition with the upper rim of the acetabulum and the lower part of the capsule, particularly of the lower fasciculus of the ligament of Bigelow, is tense. It is apparent, therefore, that when the thigh is abducted to the normal limit, the neck of the femur will be fixed between the acetabulum and the trochanter, supported by the rim of the acetabulum. The tension of the capsular ligament with its strong anterior and posterior bands contributes to the fixation of the head and neck.

The deformity of hip fracture is characteristic. The limb is everted and shortened. In fractures of the narrow part of the neck, the shortening is slight, usually not more than an inch. Shortening in fractures at the base of the neck may amount to two or three inches.

Eversion is due largely to the weight of the limb but partly to muscular action.

The line of fracture may be transverse, oblique or irregular and may extend to the head of the bone internally or may involve the intertrochanteric line or trochanters.

The periosteum is usually preserved, in part at least, a fact that is not sufficiently appreciated by those who advocate immediate operative fixation. This periosteal bridge preserves the blood supply to the neck and affords a supply of osteoblasts.

The angularity at the seat of fracture is anterior as a rule. The indications for treatment are the following:

1. To correct the deformity with special attention to proper alignment of the fragments and to the restoration of the normal angle of neck and shaft.

2. To immobilize the fragments and maintain the immobility until union has occurred.

3. To provide for the comfort of the patient and to prevent the common complications.

4. To mobilize, as soon as possible, the knee and ankle of the affected limb and to restore muscular tone by massage.

5. To prevent weight bearing for at least six months.

The same method of treatment will not be applicable to all cases. Twenty-seven and five tenths per cent of fractures of the femoral neck occur in the sixth decade and a wise surgeon will have due respect to the tendency of old people to develop pneumonia, bedsores and cystitis. Good results are largely dependent upon the proper method of treatment selected for each patient.

The first indication, the correction of the deformity, is met by full extension, full abduction and slight internal rotation. If there be impaction as shown by radiogram and by the preservation of function, and if the patient be well advanced in years or greatly debilitated, no attempt at reduction should be made. If, however, the position is manifestly faulty and likely to cause serious disability if uncorrected; if, in addition, the patient is young or of middle age and in good condition, the impaction should not be considered.

The second indication, maintenance in corrected position, has been the subject of much controversy. Three methods of treatment are worthy of consideration.

1. Fixation by plaster spica, which includes the affected extremity, the pelvis and the trunk to the nipple line.

2. Suspension of the extremity in a Hodgen or Thomas splint from an overhead frame with traction, counter-traction, abduction and internal rotation.

3. Operative fixation.

A very distinct advance in the treatment of hip fractures was made by Whitman when he advocated and demonstrated the so-called abduction treatment.

The principles involved have been mentioned and the method is familiar to all surgeons.

Briefly stated, the procedure consists in correcting the deformity by extensive, complete abduction and internal rotation of the thigh. The corrected position is maintained by the plaster spica from the toes to the nipple line.

By this means the upper part of the shaft is apposed to the rim of the acetabulum; the capsule is made tense; the fragments are accurately apposed and the angle of the neck and shaft restored to normal.

Theoretically, the method leaves nothing to be desired. Practically it is followed by results far superior to those obtained by former methods.

Campbell⁷ reports 227 cases of fracture of the femoral neck since 1910. Of these 67 were un-united subcapital fractures. The remaining 160 were fresh fractures of which there were 75 of the neck, 19 impacted, 59 trochanteric, 2 impacted trochanteric and 5 capital.

Incidentally it will be seen from these statistics that the number of fractures of the neck was 30 per cent greater than the number of fractures of the base of the neck.

The Whitman method was used in 205 cases. Of 21 of these personally examined by Campbell after periods of from 1 to 5 years there were 16 cases of solid bony union (76 per cent); 2 doubtful union with good function; 2 fibrous union; 1 non-union.

The Whitman method necessitates a prostrate position in bed with the affected limb extended and abducted and this is the chief disadvantage. The patient may be rolled from one side to the other within restricted limits thus minimizing the danger of hypostatic congestion of the lungs. The method is especially adapted to the young and to adults who are not debilitated by age or disease. The application of the spica requires special skill but this is not a valid objection.

The introduction of the Balkan frame by Borehgrevinek in the first Balkan war greatly facilitated the application of traction in any direction and also added much to the com-

fort of the patient. By means of this device or a similar overhead support and a Hodgen or Thomas splint, a measured amount of traction may be applied in any desired line. Counter traction may be made by elevating the foot of the bed. The patient may sit up in bed and may even rest the foot of the injured limb on the floor without disturbing the relation of the fragments or altering the pull of the traction apparatus.

A weight of from five to ten pounds, with counter extension, will be sufficient to overcome the shortening. The traction is made with the limb in moderate abduction and it will be noted that the pelvis will be tilted to the affected side by the traction, thus increasing the abduction and fixing the fragments by making the capsule tense.

By means of a vertical foot piece and also by a rotator of adhesive plaster the limb is rotated inward. The knee is slightly flexed by the splint.

This method of combined suspension, extension, abduction and internal rotation admirably meets the requirements and has given excellent results in selected cases. It greatly facilitates the nursing of the patient; permits upright position of the trunk; allows moderate movement of the knee and ankle of the affected limb and is the most comfortable appliance for the treatment of hip fractures.

The objection to the method is that it does not insure perfect immobilization. This objection is well-founded. One must consider however, that no method insures perfect immobilization. Moreover, unless the head is completely detached, a moderate amount of motion will not prevent union. If there be a periosteal bridge the fragments will be sufficiently agglutinated after the first three or four weeks to render unlikely any serious motion at the seat of fracture.

A more serious objection to the method just described is that it does not maintain sufficient abduction to prevent reduction of the normal angle of the neck and shaft. In this respect it is inferior to the Whitman method.

It is, however, the method of choice for aged and debilitated patients and the result obtained in this class of patients is often very gratifying. As an illustration of this, I present the radiogram of an old lady who, at eighty-three years of age, sustained fracture of the neck of the femur. Two years later there is solid bony union with moderate reduction of the angle and with excellent function.

Operative fixation of fresh fractures has been advocated by men of recognized ability.

Recently Martin⁸ has advised the immediate fixation of the head by means of two wood

screws, No. 6, 3 1/2 inches long, driven through the trochanter into the head. This is done through an incision over the trochanter and the direction is determined by the finger which locates the head and neck. The accuracy of direction of the first screw is checked by radiogram and the second screw is introduced one inch above or below as indicated by the radiogram.

Martin reports 12 cases so treated with three deaths; two improved un-united fractures; two not heard from and two cases too recent to be of value. There were three perfect results (25 per cent). Martin states that, of the four cases which he personally treated, there was one death and three perfect results.

It is evident these statistics are not sufficient to demonstrate the superiority of the method.

In his connection, Trethowan⁹ states that many attempts have been made to fix the head of the femur and draw it to the neck by means of screws driven through the trochanter. It is very difficult, however, to unite the fragments in perfect apposition. Bony union is not increased by such measures and the functional results of non-operative treatment are quite as good.

Nails were used by Murphy¹⁰ for the same purpose and with about the same success.

Axial bone grafts have been advocated by Albee and others. Albee recommends the procedure in most unimpacted fresh fractures of the femoral neck and in all un-united fractures.

Unquestionably, an autogenous bone graft stimulates osteogenesis and provides a frame work for the development of a new blood supply. The bone graft peg is the best resource for the treatment of non-union. At the present time, however, the immediate operative fixation of hip fractures is not advisable.

Removal of the head of the femur in sub-capital case fracture, as practiced by Kocher and Koenig is not favorably considered in this country. In the event of non-union, a bone graft offers a good prospect of success.

For non-union one may resort to excision of the head of the femur; apposition of the head to the trochanter after the method of Brackett, or to the bone graft peg. (Albee.)

SUMMARY.

1. The treatment of fractures of the neck of the femur by the older methods of extension is unsatisfactory and should be abandoned.

2. The Whitman method offers the best hope of good function in patients not seriously debilitated by age or disease.

3. The combined suspension and extension method, using the Balkan frame and Hodgen or Thomas splint gives excellent results in selected cases; is the most comfortable method and especially adapted to the aged and debilitated.

4. Operative fixation should be reserved for cases of non-union and exceptional subcapital fractures with complete separation.

5. The general care of the patient is highly important and is largely influential in obtaining a good result.

6. Massage and passive motion of the knee and ankle of the affected extremity should be practiced as early as possible.

7. Weight bearing should not be permitted under six months following fracture.

8. Non-union should be treated by operative measures, preferably by bone-graft.

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DISCUSSION

Chas. C. Garr, Lexington: One of the chief things I came to this meeting for was to hear these papers on fracture and the discussion of them. There is no subject in my own field of work that interests me so much as fractures. It is so large a field that a discussion of it would require all day.

One of the things that I am confronted with in the treatment of fractures has not yet been brought out today. In the paper by Dr. Sherrill he showed some very excellent lantern slides, and he showed us the muscular pull that causes deformity. I did not get from his paper what to do to overcome that pull. Overcoming this persistent muscular contraction makes the treatment of some fractures very difficult. We know that in a fracture of the upper third of the femur two inches below the lesser trochanter, the pull of the iliopsoas is terrific, and even in open operation it cannot be budged, and that the lower fragment must be brought in apposition to the upper, and that is most difficult in adults.

I shall well consider chiseling off the lesser trochanter in my next case of this kind to relieve that pull so as to get approximation, for the simple reason that fractures in that neighborhood in which the lesser trochanter is broken off, do well and we can get good alignment.

The muscle pull about the shoulder, of course, we try to regulate with the abduction splint and the acroplane splint. To say to correct the deformity and overcome the muscle pull is much easier than actually doing it.

I heartily agree with Dr. Salmon in part of what he said. I believe that what is sauce for the goose is sauce for the gander, and just because a person happens to be eighty-five is no reason that they should not have what I think to be a proper treatment for fracture of the neck of the femur and that is a plaster cast applied after Whitman's method, with the leg in wide abduction and the cases are few that cannot stand it.

In the past year I have treated sixteen cases of fracture of the neck of the femur, and I have lost only one case, and that patient was ninety-one years old and he died six months after he had broken his hip and three months after I took him out of plaster.

A lady eighty-eight years old who is now living in Carlisle had a fracture and is walking now, eleven months after her fracture.

Unless the condition is most serious, unless you cannot give your patient an anesthetic then I think they should be put in a plaster cast from the nipple line down to and including the foot and most of them take ether surprisingly well. If they cannot be properly taken care of after a reduction, they are going to die, and they are not going to die from a fracture of the neck of the femur: they are going to die from hypostatic, from decubitus or some constitutional disorder.

To properly apply plaster one must use a gas pipe frame, Hawley table or Lorenze spica box. The limit of abduction is found on the well side and then extension is made in a straight line against a perineal bar and then abduction of the fractured leg while in extension to the proper limit. This brings the great trochanter in contact with the rim of the acetabulum and it will stay there, and unless the nutrient artery is involved they will all get union. If that artery is involved you will get softening of the bone and non-union.

The idea of the plaster cast is that you can turn your patient for toilet purposes and to prevent pressure. You can turn them on the abdomen or swing them in the air without pain. One patient seventy-seven years old got to the point where she could push herself out of bed and put herself down on the side of the floor and sit in that position. I think it is absolutely a life saving proposition in fracture of the neck of the femur to use plaster of Paris and use it in practically ninety-nine and one-half per cent of the cases.

The only case that I did not put up in the past year was a man seventy with a heart skip-

ping and missing. His scrotum was as big as a derby and both legs were swollen. We treated him with a Thomas splint. In seven months he died of his general debility.

J. A. Arnold, Louisville: I know of no subject of greater importance not only to the surgeon, but to the internist as well, than the treatment of fractures. We have listened to interesting and instructive papers and discussions on this subject. I want to say when there is a definite condition as in the case of a fracture, we should employ more definite procedure in treatment. We must remember while the fracture is definite (per se.) the lines and angles are not; thus we have apparent discrepancies in the treatment. We may have the same type of fracture in one individual as in another, but the treatment necessarily different. Some surgeons obtain excellent results with a certain method of treatment, whereas others have failures; this is due to the fact, that one surgeon has become proficient with his own type of treatment while the others have not; herein lies danger as in the case of the first surgeon who thinks he is getting the best results when he could accomplish better results with a more modern method.

In the treatment of fractures of the hip, we must take into consideration the same facts as we have in all other fractures; the type of break with which we are dealing, also the causative factors. First, we have anatomical, as the angle of the neck of the femur, and the blood supply to same; next is the age of patient, there is a different procedure in handling a fractured neck of femur in the case of a child, and that of an elderly person. Leverage is important in the production of fractures. The question has arisen, "Is the fracture caused by the fall or is the fall the result of the fracture?" My opinion is the fall is caused by the fracture rather than the fracture producing it in at least 80 per cent of all cases past sixty years of age. Should the fracture be impacted, it is caused by direct force to the trochanter. The persistent outward rotation of the leg in a fracture of the neck of the femur is explained by the cause of the fracture, rather than by gravity and muscular action. When the leg and foot are fixed and the body is rotated it produces a strain on the neck and the bone breaks throwing the proximal end of the neck posteriorly and the distal end anteriorly and upward, thus external rotation and shortening.

Prognosis is more favorable if the fracture is near the trochanter because the blood supply is better than in the intracapsular fracture provided the ligaments and soft structures have not been too severely traumatized.

In case of an impacted fracture, I would advise if there is not too much deformity and

the patient is not past middle age, break up the impaction and adjust the fragments; this should be done with care lest you will do more harm than good.

There are a number of methods and appliances for manipulating this type of fractures, however, Whitman's method of treatment has been stressed as the best in most cases. If for some reason, solid union is not obtained, and if the patient is physically fit, I would resort to the open operation, rather than leave a permanent cripple.

Material to be used: I would not use metal in this fracture, it interferes with union. I would use an autogenous graft and stress where and how this graft is to be inserted; it should be placed through the trochanter at the upper border of the neck in order to have periosteum of the graft in contact with periosteum of the neck, thus nourishment is obtained from this source.

J. H. Blackburn, Bowling Green: I was rather struck by some figures I ran across a day or two ago in the "British Medical Journal," a report of the Fracture Committee in 1912. There was a series of some 3400 cases with the following facts. Relating to the restoration of anatomical form and functional results afterwards, bearing out exactly what Dr. Salmon and each essayist has insisted upon, these fragments can be and must be placed in alignment. Out of 1736 cases with good anatomical adjustment, there was good function in 90.7 per cent. Out of 1279 cases, with moderate or bad anatomical adjustments of fragments, there was good result in 30 per cent. Out of 380 cases with bad anatomical adjustment of fragments, there was a bad result in 53.3 per cent of the cases.

The point is that out of these 3400 cases that were anatomically good in alignment of the fragments, the results were 90 out of 100 good functional results. Of those cases with an indifferent or a bad adjustment of fragments, there were 30 out of 100 with good functional results, which leads to the conclusion that out of every hundred cases treated we can give good functional results by good anatomical restoration in 60 cases out of every hundred.

The lesson, gentlemen, is to reduce your fracture, certainly the first principle in the treatment of any fracture.

I just wanted to stress the urgency, the necessity, for a complete reduction of the fracture.

In these elderly people, I think there isn't anything that is much more horrible to me than to see an old friend of mine who is now eighty-seven around home with that right toe headed backward. It is rather disquieting to me, but when I saw the old man with his fracture of

the hip, with marked internal rotation, marked impaction and with a pronounced arteriosclerosis, with evidences of a chronic nephritis, I felt sure that we were not justified in doing anything with that particular old man, except to let him get well as best we could.

I was reminded of a remark of Binnie, of Kansas City, a good many years ago to the effect that in emergency abdominal surgery we should not delay in closing the abdomen because it was very much better to have an unsightly scar on a living patient than to have a beautifully closed abdomen on an angel.

With the old man I felt we would probably have the angel if we restricted him to bed. The old man got well with this unsightly deformity in the hip and has since been unfortunately enough to get a Colles' and has gotten well from that with a fairly slight recovery.

These are the two points, gentlemen, that I want to insist upon, an anatomical restoration so far as possible of the fragments, and treating the patient rather than treating the fracture alone.

Geo. A. Hendon, Louisville: There are just a few things that I want to say on this subject of fractures, and I want to say them very dogmatically and very positively, and they bear particularly on the treatment of fractures of the neck of the femur in old people, the senile intracapsular fracture.

You can put on plaster Paris and you can drive nails or bones or pins or anything else you want to into old people and some will survive it because if they didn't have an enormous degree of vitality they never would live to be old. Anybody that can endure the vicissitudes of the ordinary life and then make the grade of seventy or seventy-five years have great endurance.

At the Southern Surgical Association in 1907, there was a Dr. Brown of Birmingham, Ala., who read a paper and demonstrated a method of treating senile intracapsular fractures which involves a suspension principle, and since hearing that paper I have not used any other means of treating these fractures and I have got a hundred per cent cures.

I never have had a case that didn't get well and that didn't walk without a cane or cane after this treatment and had no great degree of discomfort to endure during their confinement. I think that the main obstacle to the general adoption of this method of treatment is in simplicity. There seems to be a natural aversion to the use or the application of methods that are exceedingly simple, and why this method of treatment has not become universal is because of its simplicity. The whole outfit can be built up for about \$4 or \$5. It can be used better in a home than it can in a hospital because in a

home you may screw pulleys into the ceiling. This obviates the necessity of complicated frames and derricks, overhead work, construction.

I would be more than pleased to show this method of treatment to anybody who is sufficiently interested. After you have treated one patient the gratitude will be sufficient to encourage you to continue its use notwithstanding the great simplicity of it.

I don't mean to say that you won't get results with plaster Paris and other measures described, but you will lay an unnecessary and a heavy burden on the patients.

J. G. Sherrill, Louisville: This subject is one that we could talk about all day and yet we might not say too much. The reason I presented this topic was because in the last few years it was noted that 82 per cent of all the damage suits in the State of Kentucky were due to the deformities produced following fractures. It struck me that it might be well to recall to your minds the facts with which we are all more or less familiar, that muscular pull is a great factor in the production of deformity, and that by relieving muscular pull we can very readily and more quickly reduce the displacement and get a proper alignment, and after reduction and alignment is made any method that will hold the bones in apposition and allow the patient to be mobile and not on his back flat will bring about the proper convalescence.

With reference to Dr. Carr's statement that I did not touch upon the methods for relieving this muscular pull, I will say that my paper was cut too short because of the strictness of our Secretary and the Chairman, and that I could not bring in all the points that are included in the paper. I attempted to get out the salient facts. By flexing the foot on the leg, the leg on the thigh, the pull of the muscles in the lower portion of the limb can be overcome. In fractures of the thigh you may pull all day in a direct line and be unable to overcome a strong muscular pull and bring the fragments into apposition. By flexing the leg at the knee, the thigh on the pelvis, you can readily reduce the same fracture by lifting, putting your arm under the knee, and using the foot or the leg as a lever and with the hand grasping the foot you can lift that thigh up and put it absolutely in position.

Hamilton's method of treating this fracture in the thighs of children, by placing the thigh in lateral splints and slinging the child from a frame over the bed, makes a very effective method; the same can be used in adults.

I have slides of three cases of Dr. Trawick's, one of which was a Pott's fracture of the fibula where there was marked deformity and which

was properly reduced and an excellent result obtained. One was a fracture of the thigh in which an excellent result was obtained by Dr. Trawick with a central pin fixation of the transplant in the shaft of the bone. The third was a separation of the epiphyses at the lower extremity of the femur, which is usually considered a very difficult fracture to handle. All three cases had very good results. I happened to find these cases in looking through the files of the City Hospital, and was going to use them for this occasion, giving him due credit without his knowledge. He was searching for the same cases and found I had swiped the plates.

What I want to show is that it makes no difference whether you treat a fracture by operation or by closed method, the proper thing to give attention to is the relation of the pull of the muscle in the formation of the deformity, and overcome that by flexion of the limb, relaxation of the muscle. If you cannot obtain it entirely in that way, tenotomize your muscle. You can chisel off at the small trochanter and get perfect apposition, and after you get perfect apposition and they are locked together, the limb can be put up in proper position.

INDICATIONS AND METHODS OF INDUCING ABORTION AND PREMATURE LABOR.*

By GAVIN FULTON, Louisville.

The term "Induction of abortion" is used to describe the artificial termination of pregnancy before the foetus is viable, that is to say, before the 28th to 30th week. Whereas the same procedure performed after this period is known as the "Induction of premature labor." The former operation is resorted to, in practically all cases, in the interest of the mother, while the latter procedure is indicated in various conditions which may affect the welfare of either mother or child or both.

In discussing the induction of abortion one should always bear in mind the indisputable fact that there is only one indication for the performance of this operation, namely, the saving of the maternal life. The conscientious observance of this object constitutes the alpha and omega of its justification.

This danger to the maternal life may be direct or immediate or it may be feared as a future result of some present condition or complication of the pregnancy. In the former class are to be found first of all that true toxemia of pregnancy known as Pernicious Vomiting. About sixty per cent of pregnant women suffer from nausea and vomiting in a

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varying degree, from slight morning sickness to a very severe type which persists over a long period, causing great distress of mind and physical suffering. In the great majority of cases, this is of the so-called neurotic type can be relieved or at least ameliorated by appropriate treatment and does not warrant operative interference. The toxemic type, however, is a different matter. In these cases we find high blood pressure, urine scanty, high in its ammonia content and containing albumen, acetone and diacetic acid. The blood chemistry is frequently abnormal, showing a marked increase in urea nitrogen, non-protein nitrogen or creatin in one or all of them. In addition, there is progressive wasting, dehydration, sometimes elevation of temperature and in many instances, profound disturbance of the central nervous system. With the above clinical picture established, abortion should be resorted to immediately in the hope of terminating a condition which otherwise would prove fatal to the mother.

Every woman, who during the earlier months of pregnancy, after the formation of the placenta, gives an authentic history of two or more painless bleedings, should be diagnosed as a Placenta Previa and the uterine contents evacuated at once. This, in the writer's opinion, is one time when there should be no temporizing in the hope of a

successful delivery at or near term, either by Caesarean section or other obstetrical procedure. There is no period of pregnancy at which hemorrhage of placenta previa is more prone to occur than another, but each one which does occur carries the potentiality of a fatality, in spite of by whom, or how treated, and so I repeat the induction of abortion in these cases is imperatively indicated as soon as a diagnosis is established.

Infection of the uterine contents from any cause whatever, justifies therapeutic abortion and the commonest illustration of this class, according to many writers, results from unsuccessful attempts at criminal abortions without due regard to proper asepsis. Whether the foetus be dead or not under these conditions, the uterus should be emptied, followed by such other surgical treatment as the indications warrant.

Hydatidiform mole also indicates the necessity for this operation regardless of the period of the pregnancy. This is true not only on account of the probability that the foetus will not develop normally, but also because of the proneness of the chorion to degenerate under these circumstances and become a chorio-epithelioma.

Pelvic deformity, ovarian tumors and uterine fibroids do not usually require evacuation

of the uterus but should be carried as far as possible and then treated surgically by means of premature labor or Caesarean section. In the case of ovarian tumors, however, if the size or condition justifies, a laparotomy should be done without disturbing the pregnancy.

Active tuberculous, while sometimes abated during pregnancy practically always progresses more rapidly after the puerperium and therefore early diagnosis followed by abortion and appropriate after treatment offers the best chance for the prolongation of the maternal life and the possible arresting of the disease. All tubercular women should be warned of the danger of pregnancy and they and their husbands instructed as to proper methods of prevention. I wish to emphasize, however, that the mere presence of calcareous glands or a few streamers shown by X-ray do not constitute a sufficient indication for the induction of abortion.

Cardiac lesions in which there is decompensation which does not yield to treatment or in which there is imminent danger of dissolution, should be aborted promptly. Retroflexion of the pregnant uterus, insanity, chorea major and certain forms of neuritis have been suggested as indications for the induction of abortion. It would seem that the first mentioned condition would be more appropriately treated by laparotomy for the relief of the fixation without interruption of the pregnancy. I have had no experience with the latter conditions but feel that it would be a most unusual instance in which any one of them would justify an abortion.

Dr. J. Whitridge Williams, in his recent text book states that there are four indications for the induction of premature labor which are as follows: First, "to obviate the dangers attending delivery at term through a contracted pelvis."

Second, "to save the life of the mother when seriously threatened by some disease from which she may be suffering."

Third, "to end a pregnancy complicated by some pathological condition of the ovum and fourth, "to effect the delivery of a post-mature child before it becomes sufficiently large to cause dystocia by its mere size."

In view of the fact that the successful delivery of the premature child is only the first skirmish in the battle for its existence and that the fight for its nutrition and development must be waged over a long period, would lead me to believe contracted pelvis is not a sufficient indication for this operation. Indeed, it would seem more logical to resort to Caesarean section at or near term under these circumstances. Placenta previa

heads the list of these conditions complicating or associated with pregnancy which endanger the life of the mother and in all cases when the diagnosis is positive the uterus should be emptied regardless of the viability of the child.

Pre-eclamptic toxemia, nephritis with high blood pressure, albuminuric retinitis and albuminuria should be delivered as soon as the symptoms become acute.

Pyelitis, complicated with pyelo-nephrosis during the latter months frequently demands premature delivery because of the danger of obstructed drainage. Hydramnios with marked distention is also an indication for this operation in behalf of the maternal welfare.

In all cases where post-maturity is reasonably well established labor should be induced both in the interest of the child and the mother's soft parts. The so-called practice of obstetrics by appointment to suit the convenience of doctor or patient does not warrant the surgical induction of labor.

Before entering upon the discussion of methods of inducing abortions and premature labor, I should like to emphasize the unanimous statement of all writers upon this subject, which is to the effect that it is not advisable to perform an abortion without the advice of a consultant. It is a step which requires conscientious thought and the emergency is rarely so acute as to make it impossible to await a second opinion. By following this advice, the patient is assured of due consideration and the doctor relieved of any possible implications as to his motives and honesty.

Many methods of inducing abortion and premature labor have been advised. Some are practical and easy of employment and others require a surgical knowledge and dexterity beyond the average in their accomplishment. Logically, the operation of election would be that which offers the least danger to the mother and the greatest simplicity of performance, provided it is applicable to a given case.

Owing to the peculiar affinity which the pregnant uterus seems to possess towards all infections, it must be remembered that any operative measure must be attended by the strictest surgical asepsis and every detail in regard to patient, instruments and technique, should be looked after as carefully as in any major operation.

Abortion may be induced and completed in one operation, or when time is no object the initial step may be performed by the surgeon and completed later by the uterine contractions which have been excited by his manipulations.

When it is decided to complete the operation at one sitting the method employed by Williams would seem most desirable. The patient is prepared as for any vaginal operation and completely anesthetized and etherized, the anterior lip of the cervix is grasped and held in position by means of a volsellum. It is then dilated with a Goodell dilator, followed by Hagers graduated dilator to a sufficient size to admit the index finger. The entire hand, well lubricated, is then introduced into the vagina and the index finger curved into the body of the uterus. While the other hand, placed upon the abdomen forces the uterus downward, the exploring finger separates the placental attachments and the product of conception is removed as a whole or broken into small pieces which may be removed by ovum forceps. This method is not applicable when the cervix is very hard and unyielding because of the danger of laceration, which results in far reaching morbidity even when promptly repaired. Vaginal hysterotomy is another method by which the operation may be completed rapidly at one sitting. This is safe and satisfactory in the hands of the skilled surgeon, but it is not practical for one who has had no special training along these lines.

Perforation of the membranes, by means of a uterine sound, with the consequent escape of the liquor amnii, is a very common practice. This is not a very certain method and adds to the risk of infection.

Attempts to separate the membrane by the introduction of glycerine through the cervix is mentioned only for condemnation. This practice originated with the Germans, who in spite of the toxemia and resulting injury to the liver cells, still adhere to this method to a certain extent.

The method which I have found most satisfactory is that of Krause. It is simple of accomplishment and is equally applicable in abortion and premature labor. It is fairly certain in its results, requires no extraordinary skill in its accomplishment and with proper aseptic precautions, entails a minimum of risk. An additional advantage lies in the fact that an anesthetic, in most instances, is not required.

The patient should be properly prepared and everything and everybody connected with the operation properly sterilized. The patient is placed in the dorsal position and after etherization, the cervix is drawn down by a tenaculum and held in position by an assistant. A sterile bougie, or better still, a medium size soft rubber catheter which has been well oiled with vaseline is grasped at its distal end and slowly introduced through the

cervix, care being taken not to rupture the membrane. The entire catheter should be introduced, for if the approximal end is left protruding from the external os, the tube will be ejected before its purpose is accomplished. The vagina is next packed with a gauze strip, care being taken to fill the cul-de-sac first. A binder is then applied and the patient put to bed to await contractions which generally occur within 48 hours.

In case contractions fail to occur within the specified time, the packing and bougie or catheter should be removed and the vagina drenched with a 1 to 5000 bi-chloride solution. If no reason for haste exists, the same procedure is repeated. This method will be found satisfactory in most cases of abortion. However, in the induction of premature labor in the latter months of pregnancy, the life of the child is a consideration only second to that of the mother and it is therefore desirable to terminate the labor in as short a time as is commensurate with safety. Under these circumstances 24 hours after the completion of the first step as above advised, the catheter or bougie should be removed. After an antiseptic vaginal douche, the cervix, which will generally have become considerably softened, should be manually dilated sufficiently to admit two or three fingers. A Barnes or de Ribes bag, rolled longitudinally, is introduced by means of a long forceps, through the cervix just beyond the internal os. Before withdrawing the forceps, two ounces of sterile water should be pumped into the bag by means of a Davidson syringe and the stop cock turned. After this, at half hour intervals, another ounce of water should be injected until the bag has reached its capacity. Under these circumstances, uterine contractions are more powerful, dilatation more rapid and the labor usually terminates successfully.

In conclusion, I should like to reiterate, first, the only indication for abortion is the preservation of the maternal life. Second, the induction of premature labor should be deferred as late as possible in pregnancy, in the interest of the child and finally, that in the induction of abortion or premature labor, the method employed should be that one which combines the most safety with the greatest simplicity of performance applicable to a given case.

THE ABUSE OF FORCEPS AND OTHER METHODS OF HASTENING DELIVERY.*

By SCOTT D. BRECKINRIDGE, Lexington.

A somewhat superficial review of the literature of the past few years carries with it something of a shock to those of us who were trained under the ancient obstetrical dictum that interference is indicated only in conditions that threaten the life of the mother or child. We find the routine administration of pituitary extract during the first and second stages of labor advocated upon no other indication than that of haste. One prominent obstetrician advocates the routine manual completion of the dilatation of the cervix and vagina, followed by the administration of pituitrin (1); another performs a routine podalic version and extraction upon the completion of the first stage (2); and a third has developed and partially advocated an operation which he calls "prophylactic forceps," preceded by deep lateral perineotomy, upon the completion of the first stage (3). All of these authors may be fairly designated as leaders in the medical profession and in their chosen specialty of obstetrics,—and the measures advocated by them are recommended for normal, not abnormal, cases. It would appear that, if we accept the claims and advice of these gentlemen at their face value, it will soon become more difficult to defend a supine willingness to allow any woman to have her own baby than it formerly was to arraign the accoucheur who neglected his patient through nine months of pregnancy and then gave her everything in his obstetrical armamentarium from pituitrin to Caesarean section in the few hours that he permitted her to labor.

The present discussion does not include within its scope the use of the various obstetrical measures upon what may be considered adequate or generally accepted indications. Nor does it lie within our province to decide where lies the dividing line between proper indications and meddling obstetrics. An effort will be made, however, to define broadly the indications for justifiable interference and then to demonstrate the danger to mother, or child, or both of any departure from the fundamental principles underlying this definition, whether it be in respect of pituitrin, forceps, version and extraction, celio-hysterotomy, or what-not.

The following is quoted verbatim from Fairbairn (4); "Considered in the widest possible terms, the object of the obstetric forceps is to effect delivery when the natural powers are

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insufficient.....The only conditions which can scarcely be brought under this generalization are such complications on the part of the mother as necessitate a forced delivery * * * and some cases in which signs of distress in the foetus necessitate rapid delivery if a living child is to be obtained." It is believed that this definition is sufficiently broad and inclusive to properly indicate certain modifications the limits of all types of obstetrical measures for hastening the termination of labor.

To the average person who is specially interested in obstetrics, any discussion of the dangers of the routine administration of pituitrin might well appear quite supererogatory, and only passing reference would be given here were it not all too apparent that the warnings of the past are being widely ignored, that many physicians are continuing to employ it throughout the second stage of labor and that some persist in its administration even during the first stage. Kosmak (5) warns that "it must be used with great caution, particularly in obstetrical cases" and DeLee, in the discussion of Kosmak's paper, mentions sixteen cases of rupture of the uterus from pituitary extract collected by McNeile and states that he knows of four others. Ehrenfest (6) states that "in studying the numerous detailed records of severer brain injuries in literature, one cannot fail to notice the frequency with which the administration of pituitrin is mentioned in these histories." He further quotes Sidbury, Neff and Porter as being convinced that pituitrin was responsible for many fatal hemorrhages in the new born. It would certainly seem that, with its bad reputation so thoroughly established years ago, it would no longer be necessary to regularly reiterate the warnings against the routine intra-partum employment of pituitrin. Twenty ruptured uteri and numerous fatal hemorrhage in the new-born should be sufficient deterrent for the most enthusiastic.

The broad general indications, quoted from Fairbairn, for forceps delivery have been widely accepted for many generations and, until DeLee (3) reported his lateral perineotomy and "prophylactic forceps," it appeared that the conservative obstetricians remained safe within their fortifications so far as any assault upon the proper indications for this particular form of obstetric interference was concerned. But with his defection, it truly seemed as though the inner guard of conservatism was going over to the enemy. It is some relief, however, to read the discussion of his paper and find little if any sympathy expressed by such men as Whitridge Williams, Eden and Polak. The idea of performing an extensive lateral perineotomy, followed by the

application of mid-forceps and extraction on the average primigravida by even the most expert obstetrician might well give pause, but it is difficult indeed to visualize what would be the result in mutilated mothers and dead new-born were this procedure to be adopted by any man who happened to be sufficiently hurried to see therein an easy way out. Each of us carries with him a very real appreciation of what forceps extraction means in maternal morbidity and foetal morbidity and mortality. But it might be well to refresh the latter by another reference to the illuminating book of Ehrenfest (6). He gives the immediate infant mortality, as calculated by Baisch, of high forceps as between forty-three per cent and fifty per cent. He further gives the immediate foetal mortality of all forceps operations as performed by experts in Winter's clinic and investigated by Gans as 10.32 per cent. In a further series reported by E. Sachs, where the operation was performed solely in the interest of the child, out of ninety cases the infant was apparently adversely affected in thirty-four. Ehrenfest gives as a list of traumatic lesions seen in connection with forceps extraction; intracranial hemorrhages, injuries of skull bones, fractures of the occipital squama, lacerations of sutures, tentorial tears, facial paralysis, Erb's palsy, injuries of vertebral column and spinal cord, and various others. Granting that a certain proportion of these more serious injuries may follow normal labor and that, in properly selected cases, the forceps alone or accompanied by episiotomy may offer the best chance to a threatened baby, it would still appear that a procedure such as DeLee's requires the soundest obstetrical training and judgment, the best of gynecological plastic skill and the best obtainable in aseptic surroundings and technique for its use. The possibility of this combination in ninety-nine per cent of deliveries needs no discussion.

The indications for version and extraction have been a repeated source of controversy within the medical profession. The operation appears to have its ardent advocates in each generation, but eventually to fall into possibly undeserved disrepute with the mass of the profession. In 1916 and at frequent intervals since, Potter has advocated the employment of routine podalic version and extraction, finally writing a book (7) on this subject. There have been repeated articles in the literature during the past few years, by both Potter and his disciples, lauding this procedure and endeavoring to prove for it both simplicity and safety. At the same time, some of the more conservative leaders in the profession have taken occasion to differ with

these conclusions and to prove by recourse to actual comparative figures the dangers of the method. Possibly two of the most interesting and illuminating of these comparisons will be found in the comments of Polak and Beck (8) and of DeLee (9). The first authors compare the statistics of 1,000 consecutive deliveries at the Long Island College Hospital with those of the 1,113 women personally delivered by Potter during the year ending August 31, 1920. The uncorrected foetal mortality, including still-births and all babies dying within two weeks, of Polak and Beck is 2.5 per cent. On the same basis, Potter's foetal mortality was 6.7 per cent. Polak and Beck do not state the number of physicians represented in their series, but as consecutive cases in a general hospital they must have been the patients of several men, some of whom were probably not possessed of Potter's high technical skill. Another interesting comparison in these figures lies in the other operative measures. Potter, admittedly doing version and extrauction wherever possible, had thirty-nine forceps extrauctions and the relatively enormous number of eighty Caesarean sections—about one case in fourteen, or over 7.25 per cent. DeLee, comparing what must be the corrected foetal mortality of Potter and the Chicago Lying-In Hospital, gives the former a foetal mortality of 2.3 per cent, and the latter, an open hospital where the work is done by several hundred men, 1.17 per cent. Figures from such sources certainly deserve our very serious consideration. Of particular interest and of peculiar pertinence to the present discussion are the figures of Rueker (10) in a communication which has for its frank purpose the unqualified support of the Potter procedure. The outstanding and impressive fact is that out of 201 deliveries there were thirty-two foetal deaths,—nineteen still-born and thirteen deaths within the first fourteen days. This is approximately sixteen per cent foetal mortality. Even excluding the three macerated still-births, the partially corrected foetal mortality remains above fourteen per cent. Ehrenfest (6), to whose work reference has already been made, emphasizes the etiological importance of breech extrauction, particularly when preceded by version, in injuries of the vertebral column and spinal cord.

Bearing in mind our general indications, or justifications, for interference in labor, we may assume that the abdominal method of delivery should be the choice in those operative cases where delivery by the natural passages is either impossible or carries with it a definite added danger to mother or child. The "relative" and "absolute" indications of old-

er days are well known to all obstetricians, but these have been so extended with improvements in technic and lowering of the maternal mortality that the choice of this method has become largely a matter of individual obstetrical judgment. Numerous writers have called attention to the growing tendency to resort to this operation upon the slightest pretext, one recurring explanation being that it is the method of choice of the general surgeon, without obstetrical experience or judgment, when called upon by the attending practitioner to terminate a difficult labor. The Massachusetts Committee on Maternal and Infant Welfare (11*) presents some illuminating figures in this connection De Lee, in his abstract of this report states that the incidence of Caesarean section to all births varied in different hospitals from 0.3 per cent to 18 per cent; that one-sixth of all maternal deaths were associated with Caesarean section; and that about one-half of these were infectious. From these figures, one might gather that the procedure has become a very popular one and that it is not entirely devoid of danger. Polak and Beck (8), in their previously mentioned article, have analyzed 2,200 Caesarean sections from various obstetric clinics of America and have tabulated some very interesting data. The maternal mortality in the 2,000 cases from other clinics than their own showed as follows: In clean cases 2.9 percent; in potentially infected cases 6.2 per cent; and in frankly infected cases 11.5 per cent. The 200 cases from their own clinic would appear to show a net operative mortality, excluding four deaths from eclampsia, of 6.1 per cent. This article further states: "Though it may be said that our series is too small from which to draw conclusions, we feel sure that the morbidity in Caesarean is vastly greater than is found in the ordinary clean abdominal section." The point of these figures would appear to be that while easy for surgeon and child, the abdominal delivery carries with it a considerable immediate maternal morbidity and mortality, in addition to the more distant and less tangible but no less real possibilities of abdominal adhesions and ruptures through the uterine scar in subsequent pregnancies.

As an indication of the probable justification of operative interference in even difficult labors, Beck (12) has submitted very significant data. His series covered 1,753 cases, in which the labor was of more than twenty-four hours duration 146 times. Of these last, almost sixty per cent continued in labor for more than thirty hours. His final analysis is of seventy-nine long labors occurring in 1,138 general service cases. Of these seventy-nine long labors, only thirteen required operative

delivery. There were six forceps deliveries, two breech extractions and five Caesarean sections, the latter all being "in cases of relative disproportion that failed to engage after a thorough test of labor." The infant mortality in the total series of 1,138 cases was three per cent, in the seventy-nine prolonged cases 7.6 per cent. As this mortality is uncorrected, it would appear fair to compare it with the figures of Potter discussed earlier. The uncorrected foetal mortality of the entire series treated expectantly was less than one-half of Potter's and the foetal mortality of the selected seventy-nine difficult labors treated expectantly so far as possible was only 7.6 per cent as compared with Potter's 6.7 per cent for all cases, normal as well as difficult. Again, in the Rotunda Hospital report (13*), we find 138 cases with marked contraction of the pelvis, of whom 104 deliveries spontaneously and nine require low forceps only. Compare this with Potter's 7.25 per cent of Caesarean sections in all cases delivered. Another report from the same hospital (14*) covering a period of two years and 3838 cases, gives a total incidence of operative deliveries for all causes of less than 5.3 per cent. Danforth (15), in a series of 500 cases where operative delivery was upon definite indications only, gives a total uncorrected foetal mortality of 3.6 per cent.

From the standpoint of the child, this whole subject has been most forcefully summarized by Ehrenfest (6). He says: "No amount of personal technical skill, unavoidably acquired at the cost of many foetal lives, in my belief, could neutralize the augmented risks to the child of a routine version followed by immediate extraction, of forceps extractions seriously recommended even on the high head for the sole purpose of shortening the suffering of the parturient woman, or made necessary by the elimination of important accessory expulsive forces in twilight sleep. No personal effort of the accoucheur could obviate the dangers of a sudden and excessive compression of the foetal head quickly forced through an unyielding birth channel by a large dose of pituitrin.

"Most clearly it has become the duty of those who advocate the artificial termination of labor under general anesthesia in order to overcome the unquestionably slower and more painful process of spontaneous delivery, to prove that such methods do not imply a greater immediate and later risk to the life and health of the infant."

It is believed that an unbiased study of the data adduced in the preceding paragraphs will justify the following conclusions:

1. The routine employment of pituitrin prior to the third stage of labor carries with

it a definite danger of ruptured uterus to the mother and of fatal intracranial hemorrhage to the child.

2. The general adoption of forceps extraction upon other than sound obstetric indication is sure to lead to an increased foetal morbidity and mortality, as well as carry a high probability of similar, though less marked, results to the mother.

3. Routine version and extraction, as practiced by Potter, carries with it in the hands of Potter himself a foetal mortality of more than twice that found with competent supervision upon the expectant principle. In the hands of some of his disciples, even Potter's mortality is more than doubled.

4. Caesarean section, while safe for the child and simple for the surgeon, carries with it a very grave immediate risk for the mother, as well as the possibility of more distant bad effects.

5. In general, each of the recognized methods of hastening the termination of labor entails a definite added danger to mother, or child, or both. The obstetrician, being equally responsible for the life and health of each of two individuals, may not lightly sacrifice the interests of either, but is both morally and professionally bound to employ those methods which sound judgment and good usage may indicate as best calculated to conserve the welfare of both.

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Articles marked with an asterisk (*) have been read in abstract only.

THE TREATMENT OF ECLAMPSIA AND PRE-ECLAMPTIC TOXEMIA.*

By HENRY M. RUBEL, Louisville.

In view of the fact that information of a positive nature concerning eclampsia is most meager, treatment must of necessity be more or less empirical. Definite opinions one year are replaced by new opinions the following year, as many theories and volumes of discussion go on unceasingly regarding the etiology of the toxemias of pregnancy.

It is my intention to stress, at the very outset of this paper, the value of the greatest weapon of offense that we have to offer in combating these conditions, and that is "prophylaxis." Therefore, the prophylactic treatment is called to your attention first because the prevalence of eclampsia is in inverse proportion to the care and intelligence bestowed upon the living habits of the pregnant woman, for convulsions due to eclampsia are almost entirely preventable by the observance of certain rules during pregnancy.

Have your patients report to your office for regular and frequent examinations of the urine, blood pressure readings, weighings, ophthalmoscopic inspections, together with general and special physical examinations when symptoms warrant. Women with substandard kidneys and unstable cardio-vascular systems are prone to exhibit some phase of toxemia. Focal infection plays a most important role, and one should insist upon carious teeth, infected tonsils and sinuses receiving appropriate attention and radical treatment when conditions warrant. Obese women should have dietary indiscretions corrected and over-eating curtailed. All endocrine imbalance should be regulated as near to normal as possible. Examinations in all normal cases should be made every four weeks during the first six months, every two weeks during the seventh and eight months, and every week during the last month. Instruct your patient to notify you whenever she suffers from headache, disturbance of vision, or edema.

The diet should be regulated, and I am especially careful in reducing to the minimum the intake of meats, eggs, cheese and beans, and toward the termination of pregnancy, prohibiting them entirely. Fluids are given freely—water, milk, buttermilk, or cream of tartar lemonade (1 dram to the pint). Sufficient sleep should be obtained and proper elimination by means of the bowel, bladder and skin secured. Occasionally, in spite of

the most watchful care, we shall one day toward the latter part of pregnancy note a rise in blood pressure, detect a trace of albumin in the urine with an occasional cast, and note some evidence of restlessness. I do not believe that eclampsia is always a preventable affection, but I am convinced that prophylactic treatment has been of untold value in reducing the inordinately high mortality rate. In some cases, despite all we can do, eclampsia will occur, but, happily, they are few and far between.

TREATMENT FOR PRE-ECLAMPTIC TOXEMIA.

Put the patient to bed and place at complete rest. For twenty-four hours only water is allowed. Salt intake is reduced, alkaline carbonates increased. Milk next allowed in varying amounts. Large quantities of fluids in the shape of plain water, lithia water, or cream of tartar lemonade. A daily purgative, Rochelle or Epsom salts, when indicated. The ingestion of hot liquids favors diuresis. Hot packs or the electric blanket may be tried. Titus gives a 15 per cent glucose solution intravenously to assist in detoxication of the liver.

If the above treatment fails to accomplish the desired results the prognosis is grave, and the onset of eclampsia can probably be avoided only by emptying the uterus.

Venesection: the removal of 500 to 1000 cubic centimeters of blood frequently leads to a prompt amelioration of symptoms. Induction of labor is the last resort.

CURATIVE TREATMENT.

This naturally divides into two methods: (a) radical or surgical, and (b) medical or conservative.

The conservative treatment as now carried out in some of our larger maternity centers shows a decided improvement in mortality statistics when compared with results obtained by radical or operative measures.

In the first place all cases of eclampsia should be hospitalized, as the facilities in a well-organized hospital are greatly superior to those in the most well-appointed home. Place the patient in a quiet, darkened room, preferably an isolation room, and as much quiet obtained as possible. A thoroughly competent nurse should be in attendance, who should not leave the patient alone until she has definitely come out of coma. One-quarter grain of morphine is administered hypodermatically. If comatose, the patient should be turned on one side and the foot of the bed elevated. The head should be held over one side of the bed so as to permit the ready escape of mucus, food, etc., from the mouth.

*Read before the Kentucky State Medical Association,

A second dose of morphine may be given when required, but not more than two grains should be given during the first twenty-four hours. Her stomach is now washed out with a 5 per cent sodium bicarbonate solution until the fluid returns clear, and when introducing the last pint two ounces of magnesium sulphate solution or two ounces of castor oil is poured down. A colonic irrigation is given of five gallons of a 5 per cent glucose solution. Some obstetricians, notably G. Baughman, advocate digitalis in some form until the patient is thoroughly digitalized to safeguard her against heart failure with edema of the lungs. If the blood pressure is over 175 mm. systolic, venesection should be done, a sufficient amount of blood being withdrawn to bring the pressure down to 150 mm. The amount of blood withdrawn will vary from 500 c. cm., to 1000 c. cm., depending upon the blood pressure. A complete blood chemical analysis now to be made, not forgetting sugar. Introduce through the same needle the same amount of a 15 per cent to 20 per cent sterile glucose solution freshly made, so as to balance the amount of blood withdrawn by venesection.

If convulsions have ceased and the patient has fallen into labor, she may deliver normally or labor may be expedited by an easy low forceps in a short time. Ether is used to control the convulsions while waiting for the effect of morphine. Gas-oxygen anesthesia is used when actual delivery occurs. If convulsions are increasing in number and severity, with coma between the convulsions, if the lungs are becoming edematous, deliver in the way that will cause the least shock to the mother. Food is withheld until three or four days have passed and then a little skimmed milk is allowed. Water or lemonade may be allowed at first in quantities.

If convulsions are increasing in number and to control the convulsions while waiting for the effect of morphine. Gas-oxygen anesthesia is used when actual delivery occurs.

GENERAL CARE OF PATIENT.

If the patient is restless between convulsions and some manipulations have to be resorted to, use gas-oxygen to a surgical degree. Chloroform is not used as it is supposed to increase the tendency toward hepatic necrosis. During an attack it is important to have something placed between the teeth to prevent injury to the tongue, lips and cheeks.

The hot pack has been abandoned to a great degree for the reason that chemical analysis of the sweat showed that it consisted practically only of water and contained an

insignificant fraction of excrementitious material, and furthermore because we gradually gained the impression that the edema served some protective purpose, as experience taught us that patients did better when it was present than in its absence.

One must be careful when abstracting a pint or more of blood in other than well-nourished patients, as the method of delivery which may finally be decided upon may result in such considerable blood loss that marked shock results.

Before passing on to the radical treatment of eclampsia I wish to mention briefly the method of Stroganoff, in which little attention is paid to the fetus in utero, but every means employed to reduce the process of toxin formation in the mother, and to overcome its irritating effects, by the administration of morphine and other sedative drugs. Stroganoff's method, in brief, is as follows:

Morphine sulphate gr. 1-4 hypodermatically; one hour later 20 to 40 grains of chloral per rectum; two hours later morphine gr. 1-4 hypodermatically; four hours later 30 grains chloral per rectum; six hours later 15 to 30 grains chloral per rectum; seven hours later 20 grains chloral per rectum.

The chloral is dissolved in 200 c. cm., saline solution and slowly injected into the rectum, or in 100 c. cm., of milk by mouth. A light chloroform anesthesia is given to prevent a convulsion which might result from local irritation. He stresses the importance of a dark, quiet room, careful watching, chloroform for each threatening convulsion, and operative treatment of the labor. Cardiac stimulants are employed and if more than three convulsions occur 400 c. cm., of blood is withdrawn. Stroganoff has collected 2,208 cases treated by this method in various clinics with a mortality of 9.8 per cent, and reports that in 230 patients whom he treated personally it was only 1.7 per cent.

Fitzgibbon and Solomons report 204 cases treated by the Dublin method with a mortality of 10.3 per cent,—the lowest in the British Isles. In this method stress is laid upon starvation, stomach lavage, bowel lavage, and the sub-mammary infusion of sodium bicarbonate solution. Epsom salts are given after the gastric lavage, and large quantities of sodium bicarbonate solution are used for flushing the intestinal tract. Morphine, chloral, chloroform and venesection are not employed, and delivery is only effected after the cervix has been completely dilated.

RADICAL OR OPERATIVE TREATMENT.

The various methods of operative procedure are as follows: Forceps; craniotomy and ex-

traction, version and extraction; Voorhees bag or metallic dilators (Bosse's); Dührssen's incisions or manual dilatation, then forceps or version and extraction; vaginal and abdominal Caesarean section.

That the child has better chances for life by early delivery nearly all the statistics prove, but these come from clinics managed by competent obstetric operators. If Caesarean section is the method of rapid delivery chosen, naturally the children will be spared. If *accouchement force* is practiced the fetal rises with the maternal mortality to great heights. It is a generally accepted fact that the convulsions cease or become less severe after the uterus is emptied.

R. Freud collected 551 cases of eclampsia from the Berlin Charité which were delivered within an hour after the first convulsion with no mortality, and in 1918 showed that the conservative treatment gave a maternal death-rate of 14 per cent, and that 47 per cent of viable children succumbed.

If pregnancy is not advanced to viability of the child, the conservative plan is chosen in the hope that the convulsions can be kept in abeyance and thus the pregnancy will continue. The conservative treatment gives such good results that it is highly recommended to the general practitioner. An attempt at forcible methods of delivery by an incompetent or inexperienced operator increases the dangers to the mother from infection, rupture of the uterus, and hemorrhage, which are greater than those of the eclampsia itself, and a large proportion of the children succumb.

Where a mechanical disproportion exists between the pelvis and the child, Caesarean section should be resorted to irrespective of the existence of eclampsia. When the eclampsia begins with extreme violence, the convulsions being very hard and frequent, the coma and cyanosis deep, the uterus had best be emptied at once if it can be done with safety to the mother.

The net results of different lines of treatment are as follows:

Mild cases:

Natural, induction, conservative interference	5.2%
Cesarean section	9.8%
Accouchement force	25%

Severe cases:

Natural, induction, conservative interference	26.3%
Cesarean section	43.2%
Accouchement force	50 to 60%

At this point I wish to mention a few procedures being used, but which cannot be recommended as they have been found wanting when all the evidence had been deducted:

(1) *Veratrum viride* will reduce the blood pressure, and, at times, to an alarming degree, but it does not help to eliminate the toxin which is causing the blood pressure. Toxines are not eliminated by this blood pressure reduction, so therefore why use it? It is a circulatory depressant and at times may cause grave disturbances.

(2) Thyroid extract has been advocated by Nicholson, but has not been used extensively enough to justify definite results.

(3) Lumbar puncture was employed in 1904, by Kronig, with beneficial results. The cerebrospinal fluid was found to be under considerably increased pressure, and improvement followed the withdrawal of from 10 to 20 c. cm. Henkel does not rely on spinal drainage alone, but follows it with the injection of cocaine .015 and scopolamin .0003. He reports good results in the control of convulsions.

(4) Renal decapsulation has been suggested by Edebohls. This is believed to be of value in total suppression following delivery and is to be employed as a last resort.

The keynote in the treatment of eclampsia is team-work and constant and eternal vigilance. No physician should undertake to treat a case of eclampsia who is not ready to stay on the job. This is a real-man-sized-job, and as you will only encounter this condition about one time out of five hundred, it becomes your duty to see that your patient gets your undivided attention and special attention from your nurses who can only become especially fit to handle such cases by a close personal touch with the physician, who should drill, direct and drive the salient points home to them in a number of cases. One or two nurses trained to handle such cases would be a great boon to physicians sending in their cases to their favored hospital. Every hospital having an obstetric service should have several nurses who are fully informed upon this subject and who can go ahead with the initial stages of the treatment until the medical attendant arrives.

From the various methods advocated one becomes more convinced than ever that we have no dependable treatment for eclampsia. Even if this should be conceded I am of the opinion that every physician, and especially every institution having an active obstetrical department, should have some definite routine outlined and in good working order to take care of any emergency that may arise during any hour of the day. It would be of tremendous benefit to all doing obstetric work to have comparative statistical reports from all large hospitals, at yearly intervals, showing in detail how they are handling their eclamp-

ties, the results of their treatment, new suggestions that may have been put forth and instituted, and, in the final analysis, to see what progress we are making in the handling of these cases, and what influences have been most successful in bringing about a reduction in morbidity and mortality.

Many cases are essential before one becomes thoroughly trained in the various moods of this disease,—every case, it seems, being just a shade different from the last one attended, so much so that often conservative treatment is carried too far, and the emptying of the uterus is delayed too long in cases which are undoubtedly toxic.

In closing I wish to present a routine which is practical, and if carried out judiciously will show improvement over some of the methods now in vogue:

ROUTINE FOR ECLAMPSIA.

Have ready:

Six ounces saturated solution magnesium sulphate,

Five gallons of 2 % sodium bicarbonate solution.

Under nitrous oxide oxygen anesthesia:

(1) Place the patient on the left side near the edge of the bed, with the head low to allow secretions to drain out of the mouth.

(2) Palpate the abdomen, locate fetal heart, and take blood pressure.

(3) Make rectal examination to determine whether patient is advanced in labor.

(4) Catheterize the bladder to secure specimen of urine for examination.

(5) Give one-half gallon soap suds enema followed by colon irrigation with four gallons of sodium bicarbonate solution, and when introducing the last pint add two ounces of magnesium sulphate solution.

(6) Withdraw the anesthetic and quickly introduce the stomach tube, lavage, with one gallon sodium bicarbonate solution, then pour four ounces of magnesium sulphate solution into the stomach at the end of the lavage, or two ounces of castor oil.

(7) Place the patient in electric blanket hot pack for fifteen to twenty minutes; place ice cap to head; watch carefully for any signs of depression.

(8) If convulsions continue and blood pressure is above 150 mm., then withdraw 500 c. cm., of blood: during this procedure the blood pressure and pulse are constantly observed; if the blood pressure falls to 100 mm., or the pulse rapidly changes, discontinue at once.

(9) Introduce 500 c. cm., of a 15 per cent warmed, sterile glucose solution intravenously.

(10) If the blood pressure is not high, and convulsions continue, and patient is not ready for delivery, then give morphine sulphate gr. 1-4 hypodermatically every two hours until the convulsions cease or the respirations are markedly lowered.

(11) If the patient is advanced in labor, then under nitrous oxide oxygen anesthesia expedite delivery with forceps or version.

(12) If the patient arrives in coma, then all the above manipulations can be conducted without anesthesia.

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Passage of Methylene Blue from Mother to Fetus.—Holtermann's research showed the dependence of the passage of methylene blue, from the maternal organism to the fetus, on the mode of application of the dye. The persistence of the dye in the fetus coincided with the elimination of the dye by the maternal urine. The passage of the dye through the placenta was not influenced by the age of the woman, the number of her previous pregnancies, nor by the sex and the age of the fetus. Labor pains and delivery seemed to be without effect on the passage of the dye. Elimination of the methylene blue by the fetal kidney did not occur, even when the maternal blood was overcharged with the dye. The amniotic fluid, from the fifth to the ninth month, colorless derivative of methylene blue in the may be a product of the epithelium of the amnion.

PRESENT STATUS OF PITUITARY EXTRACT IN OBSTETRICS.*

By WALKER GOSSETT, Louisville.

The writer after reading a letter by Doctors Charles C. Haskell and M. P. Rucker, Richmond, Va., in the A. M. A. Journal, June 16, 1923, page 1971, decided to write this paper.

I cannot let a statement stand without a sincere protest "That Pituitary Extract is contra-indicated in Obstetrical Cases," as indicated in this letter.

It is true that this Extract is dangerous in the hands of those who do not know how to use it, and because there have been cases reported of uterine rupture with fetal and maternal death, must we stop the use of this important drug? It has a very important place in obstetrics and I know of no drug that I would more regret giving up than this Extract. There have been deaths from the use of chloroform, ether, even nitrous-oxide gas, because of these few deaths, must we stop the use of these drugs?

In 1909 when Parke, Davis & Co., first brought out their pituitary solution, 1 c. c. ampules, a protest was made by the writer to Dr. Bolling, the Parke-Davis representative, Louisville, at that time, that the dose was entirely too large and suggested that one-half c. c. ampules be issued to take the place of the 1 c. c. (would now advise 3 and 5 m. ampules) that a great many physicians who did not understand the use of this *powerful* drug would use the full c. c. as a normal dose and much harm would come of this and a bad reputation for the Extract. Such was the outcome. The Pituitary Extract that the writer has used has been Pituitrin, Parke-Davis, it is an Extract of the posterior lobe of the Pituitary Gland in solution. It is a powerful drug, a reliable therapeutic agent and one that has been much abused.

Now has this pituitary extract a place in obstetrical practice? Paul T. Harner in his paper on the occipito posterior position read before the Section of Obstetrics and Gynecology of the Buffalo (N. Y.) Academy of Medicine, February 22, 1923, made the following statement: "Uterine stimulation particularly that produced by pituitary extract, has an important place in obstetrical therapeutics." Bernhard Steinberg in his article on "The use of Pituitary Extract in Labor," American Journal of Obstetrics and Gynecology (January, 1924) reports, "In sixty cases where clinical observations were conducted the time for pituitrin to take effect

varied between three and five minutes. These observations were made in instances of uterine inertia where the patient ceased to have uterine contractions for a considerable length of time. Pituitrin was injected and the first appearance of contractions was assumed to be due to the drug. The length of each contraction lasted from thirty to ninety seconds. The interval between the contractions varied between forty seconds and two minutes. It was observed that in primipara contractions were stronger and lasted a shorter time than in multipara. The pains were universally more severe than the normal. It was a matter of no particular skill to recognize pituitrin contractions. From one-fourth to 1 c. c. of the Parke-Davis preparation was used.

In no case did he initiate labor with pituitrin. Out of seven cases with os dilated three fingers, the head engaged and in the superior of middle strait with a one-fourth c. c. of pituitrin, the baby was born from eleven to twenty minutes. In three cases, out of the seven, there was an unilateral laceration of the cervix.

In six cases, where the os was one or two fingers open and the head engaged, contractions were stimulated and a rapid dilation occurred without lacerations. But cervical lacerations are very apt to occur in these instances, as evidenced by the tension the cervix was subjected to and felt by the fingers. In the remaining forty-seven patients, pituitrin was administered when the os was fully or almost fully dilated or the head on the perineum. In these cases, in my opinion, there were definite indications for the employment of the drug. It was used in the following conditions: 1. In sixteen cases of uterine stasis with the head arrested in the perineum; 2. In twelve cases where the patient had a prolonged labor with marked fatigue, the os was nearly fully dilated and head engaged; 3. In eight cases of uterine inertia, the head arrested in mid-straits, os almost fully dilated and dilated; 4. In seven cases where contractions were getting weaker with above conditions present, and 5. In four cases with fetal complications as evidenced by change of heart sounds, head in mid-straits, os four fingers dilated and dilatable. In no instance was there any physical disproportion between the baby and the pelvis. Only one out of the sixty cases had a perineal laceration. The perineum was routinely ironed out manually. In one instance the breech was presenting. In the sixty cases we noticed no fatal complications. No postpartum hemorrhage or maternal complications occurred."

Before the Obstetrical Society of Philadelphia, May meeting, 1923, J. C. Applegate,

*Read before the Kentucky State Medical Association, Louisville, September 22-25, 1924.

Professor of Obstetrics, Temple University, in his paper, "Rational Obstetrics from the Teaching Viewpoint," pertaining to the Injudicious use of Pituitrin states, "Dangerous is the injudicious use of pituitrin. A most valuable remedy when cautiously administered and yet a dangerous drug before or during delivery, unless the patient's susceptibility to it is ascertained by its administration in small doses. The fact that five or six minims will create more vigorous contractions in labor in some women than a whole ampule will in others, while in still others it is absolutely inert, are facts too well known to need further comment.

Following the advent of this extract, when its value as an adjunct in labor was first heralded, it was not unusual to hear physicians state that "They had put aside their forceps and no longer waited around for a long labor, that they simply gave an ampule of pituitrin and promptly terminated it." This attitude still prevails with some of the profession. The temptation is often great, but the danger cannot be overestimated unless the physiologic effect is first determined by the administration in minute doses and then only after all contraindications, both fetal and maternal, have been eliminated."

Not only is the mother in danger but likewise the unborn child, from compression as a result of the more or less continuous contractions, one of the characteristic features, should the patient respond to the action of the drug. Again the danger lies not so much with the obstetrician who is familiar with these facts, as with the practitioner doing obstetrical work who is busy along general lines and probably neglects to keep well informed as to the dangers in connection with this practice."

Dr. M. A. Tate in his article on Pituitrin in the Second Stage of Labor, *American Journal Obstetrics and Gynecology*, 1923, Volume 252, has this statement to make concerning the criticisms of the use of pituitrin, that if used indiscriminately may be a contributing or even the main cause of trouble is self evident to the intelligent but it is not convincing, however, to read some of the case reports where pituitrin is put down as the cause of an unusual complication or death of patient. Such criticisms, without complete histories of pertinent facts, or condemnation of the drug when erroneously used, are little value from a statistical standpoint of the merits or demerits of the drug in question and leaves those seeking enlightenment in the same position as before perusing such reports."

Tate also states that "I have used pituitrin in the second stage of labor for a number of years, and during the past year in thirty se-

lected private cases, and after mature thought and careful observation has come to this conclusion; that if used judiciously, from an obstetrical standpoint, is a boon to motherhood.

There are four different stages in which pituitrin is used.

First. For the induction of labor. The writer has never used it in this stage, has never felt it was necessary, although literature contains much on the use of it in this stage.

Second. During the later part of the first stage of labor in a slowly progressing tedious labor, where the cervix is about two-thirds dilated or dilatable, and the relations of the head and pelvis are normal, two to six minims administered at intervals, depending upon the progress of the case, will increase the force of uterine contractions and so shorten the labor. First use two minims, no results in thirty minutes, try four minims, no results, then in thirty to forty-five minutes use one-half c. c. If the child has not been delivered by now, I generally use the forceps, or may repeat the one-half c. c. owing to the conditions of things.

Third. The second stage of labor.

Now pituitrin is most useful.

"It is most frequently used in uneventful labors after full dilation with the head on the perineum, when it seems that the uterus has given up and it would take only a few good pains to complete the labor, a dose of from two to four minims will often produce the necessary contractions to complete the delivery." Such kind of cases that use to call for the short forcep delivery.

"It is often used as a preliminary to the application of forceps, the object being to force the head more securely into the pelvic canal in order that the delivery may be facilitated."

Fourth, Pituitrin in the third stage of labor.

"Seides administered one-half c. c. of pituitrin at the beginning of the third stage in 500 consecutive cases. He is convinced that the results are such as to warrant its use as a routine, and maintains that not only shortens the third stage, but makes such manipulations as Crede's maneuvers altogether superfluous. He claims to have noticed a definite diminution of the amount of blood lost postpartum and that even the lochia were diminished to such an extent that he was able to get his patients out of bed earlier than usual. He believes that a single dose of pituitrin thus administered facilitates involution of the uterus. In no case did the pituitrin cause retention of the placenta. The writer has never used pituitrin as stated above. I

have for twenty-eight years made a routine practice to use Ergot (now one ampule of Aseptice Ergot, hypodermically) following the delivery of the placenta, and have never had a severe postpartum hemorrhage, and no doubt this safety is double when you have used pituitrin during the labor.

Briefly, pituitrin is indicated in the following conditions: "1. Prolonged labor; 2. Patient getting exhausted; 3. Uterine contractions getting weaker; 4. Uterine stasis with head in the perineum; 5. Fetal complications." In these indications the following conditions must be present: 1. The relations of the head and pelvis are normal; 2. Engagement of the presenting part; 3. Fully, nearly fully or dilatable os; 4. Normal presentations."

Practically any indications for forceps indicate use of pituitrin.

In marginal or partial placenta previa with incomplete dilation of the os and rupture of the membranes, "A small dose of pituitrin may be sufficient to force the presenting part down into the pelvis and against the placenta, the head thus acts as a very sufficient tampon."

IN CONCLUSION.

The routine practice of administering pituitrin to hasten the delivery to save time is strongly condemned. "Pituitrin causes or increases muscular contraction of the uterus, strengthens and slows the heart beat and by its contracting action on the arteries raises the blood pressure." Pituitrin will in some cases produce such powerful contractions within a few minutes that your patient will have to be surgically anesthetized, and it sometimes fails to have any action, even after several doses have been administered.

Be careful in your dosage of pituitrin when nitrous-oxid gas is being used, because uterine contractions, under gas, is not weakened by its effect but is actually stimulated, so you have stimulation from both pituitrin and gas.

Having used pituitrin in my own practice for fifteen years, I have never seen harm come from its use, either to the mother or child. Remember you have a most powerful drug to deal with, so be governed and "Feel your way."

In conclusion, I wish to endorse the following quotation from *Gynecology-Obstetrics*: Dudley and DeLee, series, 1922.

"The ideal obstetrician must set his face against all expedients to shorten labor unless scientifically indicated. Not only are forceps to be condemned when improperly used, but under this category should also be considered the indiscriminate use of pituitrin, version and Cesarean section. The ideal ob-

stetrician must be progressive without being radical."

DISCUSSION.

Edward Speidel, Louisville: I am sorry that I heard only the end of the first and second papers and the last paper. There was an obstetrical case that demanded my attention.

In regard to the induction of labor, it is pathetic, I think, that we have no definite indication for the induction of labor, in hyperemesis gravidarum. Williams admits now that the ammonia coefficient is no longer an indication for the induction of labor, and the other urinary tests have followed the same route.

Only lately I had a patient with hyperemesis in whom I succeeded in stopping the vomiting and the patient was eating as much as the trained nurse who was in attendance. In spite of that she showed choreic symptoms and an interruption of the pregnancy had to be done finally, simply rupturing the membranes, but the patient died.

In tuberculosis there is no doubt about it that in active tuberculosis if you can get the consent of the mother the pregnancy should be interrupted. In latent tuberculosis we all have had the same experience, that the mother improves remarkably during the period of pregnancy and gives birth to unusually large children, and I have had some of those patients apparently get along later on so that I would hardly be in favor of interrupting a pregnancy under such circumstances.

We must change our minds in regard to the interruption of pregnancy in heart disease. Only recently an observation has been made of 100 or more patients with cardiac diseases in Chicago, and it has been found that the majority of those patients delivered themselves without any serious trouble.

I had a case only lately in which I expected a great deal of trouble, and the patient was delivered with but little difficulty. The ordinary cardiac case with a little more attention to rest will go through the pregnancy very nicely.

As regards the second paper, the abuse of forceps, I think the abuse of the forceps is largely due to a misuse of the forceps. If you try to steer a ship through an improper channel you will have a wreck, and if you realize that in many instances the forceps are applied regardless of the diameter in which the head is placed, and traction is made in the improper direction, then you will find that a great deal of the abuse of the forceps is due to the improper use of the forceps. However, there is no doubt about it that we have gotten away from the forceps in very difficult cases. A high forceps operation is no longer performed even by the expert obstetrician. In those cases we always prefer

to do either a version or a Cesarean section. If you do a version, with all the slurs that have been cast upon Potter, be sure and do a Potter version. Don't do a Potter version for the indications that he gives you, to simply save a woman the pains of the second stage of labor, but do a Potter version because the version as demonstrated by Potter is the most beautiful procedure imaginable. I demonstrate it nearly every year at the post-graduate clinic at the City Hospital on a manikin, and we are in the habit of performing that version; we teach that version to the students at the University. It is a beautiful procedure, but I would not perform a version in every case as Potter does.

In regard to pituitrin, I think it may be admitted that pituitrin is fast going the road that ergot went. In my very young days ergot was used indiscriminately in labor, and I think pituitrin is following the same course. I use it very little. I use it occasionally in three minim doses in the second stage of labor when I have full dilatation and there is delay in the progress of the case. I no longer use it after the delivery of the baby in the third stage to facilitate the delivery of the placenta, because I have found that that was injurious. That is a procedure that was advocated at Sloan Maternity Hospital.

In Cesarean sections even you will find that it is much better to do the suturing of the uterus and then after the suturing is completed to give the pituitrin, then followed by ergot in order to secure contraction.

Nevil Garrett, Frankfort: I would like to make one point in regard to the use of pituitrin and forceps. Most of us who have done obstetrics for a good while know what we can do with the forceps. We do not know what we can do with pituitrin. When we give pituitrin we are giving something we cannot control. That patient may have an idiosyncrasy for it. There are too many cases of ruptured uterus due to pituitrin. How many ever heard of a ruptured uterus due to the use of forceps? You may have a lateral tear of the cervix which might amount to a rupture of the uterus, of course, but I do believe that between the two the forceps is the safer, in the hands of those who are accustomed to using them.

Wm. T. McConnell, Louisville: The more we learn about obstetrics the more profound respect we should have for the forces of nature. The greatest office of the obstetrician is in aiding nature rather than in devising scheme and plans for supplanting nature. There comes a time, however, in our work when it would be wrong for us not to employ some method to aid nature. When we have a woman who has abnormalities, who has disease, who has inertia, or other things

of that character which are going to prolong her labor unnecessarily, which are going to endanger her child, it becomes our duty to step in and give that woman the relief we have at hand. I think there is as much abuse of the use of forceps and other methods by using them at the wrong time, using them injudiciously, as any other thing. It is not right for us to let a woman who is attempting to give birth to a child go on and ineffectually have strong contractions when she has complete dilatation of the cervix, trying to deliver herself, without doing something to help her along.

I want to speak just a moment about the use of forceps and version. The method of version done by Dr. Potter of Buffalo, has been brought to our attention in the last two years or so, and has been criticized because of his use of it, I feel, as a routine measure, in all cases to shorten the second stage of labor. I want to say, however, that I consider his system of delivery the best system of version that we have ever had so far, and where version is indicated I would strongly recommend the use of his system of version. In fact, we can accomplish so much with it that I believe the time is not far distant when that system of delivery will supplant the use of high and axis traction forceps.

In my own experience in the past two years I have done 73 cases by the Potter system. In every case there has been definite indication for interference. I never have used it as a routine measure to shorten the second stage of labor. In five of these cases I have accomplished the version and delivered the baby with comparative ease where I had tried the use of high or axis traction forceps and failed to deliver, which convinces me that the use of this system of version gives us a very good and useful implement where we formerly would have used the high or axis traction forceps.

As to the use of pituitrin, the typical case where it is of value, I think, is a multipara who has had normal labors previously, who, as we say, goes to sleep on the job, who has complete dilatation, or practically so, who has uterine inertia, where a stimulant will effect an easy and rapid delivery. I do not believe in the employment of large doses of pituitrin. We find that three minims will give very effective results. The drug is a very powerful one and one that has its place in obstetrics. Those who condemn it universally are disregarding an instrument that gives us a great deal of benefit in the practice of obstetrics.

William H. Emrich, Louisville: Relative to eclampsia and to Cesarean section: The only difference between the nausea early in pregnancy and eclampsia is degree. They are both acidosis. You need to alkalinize your patient to neutralize the acidosis.

I have found that an exceedingly excellent way of handling these complications of pregnancy is by the use of Fisher's alkaline solution, which is composed of sodium carbonate, crystallized, and sodium chloride, chemically pure. Combine these two salts to the extent of about 1.5 per cent. Clean out the bowel with a soap and suds enema, then give the alkaline solution by the Murphy drip. If you feel the need, sterilize this solution and put it into the vein.

Usually in seeing cases of eclampsia, most of us see them in emergency. We do not have time to anticipate what this thing is going to be. We need to act promptly and the judgment must be good. In my early experience I have done the things that have been suggested, but I find that one needs quick action, and the older I get and the more my experience broadens, the more I am inclined to favor opening the abdomen and getting the baby out by Cesarean section. That has been my later experience and I do endorse it, because I find the convalescence is short, I find it is excellent.

A few days ago I operated a little lady, aged sixteen, whose baby after birth weighed beyond eight pounds. She was brought into the Emrich Hospital early one morning.

Labor had been moderate, not hard, yet there were distinct labor pains. This was kept up for approximately two days with some slight interruptions. I took the external measurements. I remarked to some of the nurses that we would probably be obliged to open the abdomen and to relieve pregnancy in that way. It was a full-term pregnancy. At about twelve o'clock noon, the girl went into convulsions. I ordered the operating room prepared, and it did not take long to do a Cesarean. I do not endorse doing Cesarean sections merely because they are spectacular, merely because the fellow who is standing around may marvel at the way it is done and the looks of the thing; but, I do believe that we conserve the health of our patients because it means much to a woman after the baby has come for her to have good body integrity, for her to be able both mentally and physically to enjoy life afterwards. Every physician should take pelvic measurements and when found short of the normal average, should place his patient in environment equal to any emergency.

R. A. Bate, Louisville: There is very little question that one can raise in regard to the opinions expressed in these papers. Certainly, the paper of Dr. Beckinridge was a most excellent paper, and we feel sure that the forceps are something that can be always relied upon. I think it is a matter of personal equation when one selects these various treatments.

There are just one or two points I would like to discuss, that might have been elaborated a

little more. In regard to eclampsia, as far back as 1891 St. Blaize brought out the fact that these varied toxemias of pregnancy, from the uncontrollable vomiting to the eclampsia, were more or less degrees of the same toxin. St. Blaize found the liver responsible. As a result of further investigations, of our marvelous physiologic-chemists, the same findings are verified now. From an endocrine stand-point we find these things to be considered, viz., metabolites both of maternal and foetal origin. The liver during pregnancy has the burden of the nitrogenous metabolism to bear, and here seems to be our chief fault. The liver should be one of the first organs to be observed. Syncytial cells of placental origin, foetal amino-acids are considered the specific metabolites of eclampsia. As the doctor said, if our endocrine balance be maintained we will probably have no trouble.

In addition to the liver we have the parathyroids controlling the amino-acids, another phase of this same elimination, this great question of metabolism. Some excellent reports have been given in favor of the parathyroids. Although blood examinations have been made in eclampsia where there was not an excess of the amino-acids present, when we cannot make a positive diagnosis, we must bear in mind all of these sources of disturbed metabolism.

We know that in many instances there may be an albuminuria without actual nephritis. There may be both parenchymatous nephritis and rarely an interstitial nephritis.

I think just here we should make a decided distinction as to when to use opiates. The opiate in some cases should not be used. Morphine in other cases has given excellent results where there was a parenchymatous nephritis, just as pointed out by Loomis. In such cases the spasmodic condition was controlled, elimination by the sweat glands was helped, and there was no harm, but should an interstitial nephritis exist an opiate is most decidedly contraindicated.

In addition to the dysfunction of the parathyroid, and the liver, the corpus luteum may be at fault. Excellent results in many cases of emesis, have been observed where corpus luteum extract was used. From the placenta itself an individual toxic material has been permitted to escape into the maternal blood-stream, and we get this specific poison that produces the eclampsia, added to these other things.

The metabolism of pregnancy seems beyond any question to settle the source of our eclamptic convulsions and bad results, so of course the treatment must be based on the cause.

In regard to the use of pituitrin, I think if we have a definite purpose in mind when we use pituitrin we will not have unfortunate results.

That is, use to expel the foetus by its specific function of causing uterine contraction.

O. O. Miller, Louisville: I wish to speak on one point only, and that on Dr. Gavin Fulton's paper. In some of the indications he gave for a premature abortion, Dr. Fulton cited active pulmonary tuberculosis as an indication for abortion; but that in latent tuberculosis we were not justified in terminating pregnancy. In the main I agree with the essayist. We have been too prone, in the past, to induce abortion where we have a diagnosis of tuberculosis irrespective of whether the lesion is active or arrested.

If tuberculosis is such a menace to the pregnant woman, or to women in general; we ought to find a higher mortality for tuberculosis among women than among men. Statistics do not support this. One of the most astounding things in medicine today is the rapid decline in pulmonary tuberculosis. Corbett ("Causes of tuberculosis"—Cambridge Universal Press, page 36) analyzes the statistics in England from 1861 to 1910. During this period the males showed a decline in mortality rate of 43 per cent, and the females a decline in mortality of 55 per cent.

During the first half of life (up to 35 years) the males showed a reduction in mortality which either approximated or exceeded 50 per cent, whereas the females show a reduction (for all ages) of 55 per cent, and during the whole of life (up to 65 years) the reduction has either approximated or exceeded 50 per cent. The greatest decline, namely 65 per cent, occurred between the twentieth and twenty-fifth years, but the decline shows over 60 per cent during the whole period from the fifteenth to the thirty-fifth years—this is the child bearing period. There is only one period where the female death rate exceeds the male death rate and that is to the fifteenth year.

I recently had occasion to look into the statistics in regard to tuberculosis and pregnancy. Dr. Fulton and I have discussed this on several occasions as we were conjointly interested in it. G. E. Ward (*Lancet*, 9-15-23, page 557), in 1923 in England, analyzed a number of cases of pulmonary tuberculosis and pregnancy. He had 442 labors in 240 patients; 32 per cent were unaffected, 19 per cent were better, and 49 per cent were worse. The onset after parturition showed 17 per cent, of whom nearly one-half died, and 4 per cent showed an onset during pregnancy.

It is this 27 per cent, in which the disease is activated which has been woven into the literature and which has influenced the writers on the subject. He considers that parturition is likely to make tuberculosis worse, but not fatally so. He had very few statistics on miscarriage—only 31 cases—and he admits that these were not thoroughly investigated.

In those cases in which abortion was induced, 14 or 47 per cent showed no effect on the tuberculosis; 1 or 3 per cent were improved, and 16 or 50 per cent were made worse; whereas in those that went to full term 49 per cent were made worse.

His conclusions are as follows: Pregnancy and parturition are likely to make her worse by 50 per cent, and this chance as against 19 per cent that she may be improved.

Norris and Murphy ("Pregnancy in the Tuberculous"—*Amer. Jr. Obst. & Gynec.* 12-6-22—Vol. 4, page 597) analyzed the statistics in regard to tuberculosis and collected the statistics in America and Canada. Time does not permit us to analyze the figures fully. I will just take a tabulated table and condense it for our purpose by classifying the improved and unimproved in the different stages of the disease.

The non-pregnant woman with tuberculosis in the first stage shows 71 per cent either improved or no change and 27 per cent either worse or died, whereas the pregnant woman shows 68 per cent either improved or no change and 30.5 per cent either worse or died. The figures run almost parallel. It must be admitted, however, that the non-pregnant woman shows a greater percentage of unimprovement, and this holds true in all stages of the disease.

In the second stage of the disease the non-pregnant woman shows 40 per cent either died or worse, and the pregnant 46.6 per cent; and when we get into the far advanced stage the mortality is just about the same for the non-pregnant woman (80 per cent) as for the pregnant (84.5 per cent).

I think that before we determine whether a woman should be aborted or not, we should decide definitely the stage of the disease and whether it is active, quiescent or arrested. In my opinion, a far advanced case of tuberculosis, even though arrested, is a bad risk for pregnancy, although some of these cases will go through labor fairly well. It is time that the obstetrician and the internist got together on the subject. We speak of contraceptive measures and warn the tuberculous woman in regard to pregnancy. This, however, is no assurance against pregnancy. If you have a woman with active tuberculosis who is going to remain at home and run the risk of becoming pregnant, it is better to sterilize this patient either with radium or the X-ray. Some of these cases, even though with latent tuberculosis, if put on a rigid regime of rest and fresh air and constant supervision will go through their pregnancy remarkably well. Walsh (*Amer. Jr. Obst. & Dis. Women* Vol. 77, Sept., 1918, page 292) analyzed his own statistics in regard to tuberculosis and pregnancy and he concluded that if they were carefully watched they could go through pregnancy very well.

Gavin Fulton, Louisville (Closing): The subject matter of my paper is something that has always been of great interest to me because of the many varied opinions we find upon these two subjects. I am very much pleased with the discussion which I had, particularly in regard to what Dr. Miller said. As he knows, we are both in absolute accord in regard to this matter. I tried to bring out in the paper the fact that activating tuberculosis which was the instigation of the abortion and never the latent, passive type, was the thing to watch for.

I was somewhat disappointed that in the discussion we have had no one has taken issue with me or endorsed me in regards to what I consider the main point of the situation, the main indication for abortion, namely the induction of abortion for placenta praevia. It may be that when one has had his fingers burned he feels a little more positively about matters than he otherwise would, but after many, many years of experience in obstetrical work I feel most positive that one indication which stands out above all others for abortions or premature labor, according to the period in which diagnosis has been made, is placenta praevia. No doubt most of us have seen the patient who died in front of our eyes before we had time to make up our mind what we were going to do. We realize, if we have seen that, that if that had been anticipated and that uterus emptied, there might be a chance of saving the baby, or better still, when you make an early diagnosis, by abortion you have sacrificed the fetus in its growth but you have almost surely saved a human life because it is beyond controversy, in my opinion, that the hemorrhage of placenta praevia in many instances is beyond the control of any skill or any method which may be adopted, and the death of the patient occurs.

I expect this to be my routine forever in the future: In every instance where I can make a positive diagnosis of a placenta praevia regardless of the period of that gestation, the uterus is going to be emptied.

BOOK REVIEWS

Manual of the Diseases of the Eye—For students and general practitioners, by Charles H. May, M. D., director and visiting surgeon, eye service, Bellevue Hospital, New York; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York.

Eleventh edition, revised with 374 original illustrations including 23 plates, with 73 colored

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Chapter XI on Uveitis and Chapter XXV on Disturbances of Motility have been rewritten, the latter with the able assistance of Dr. J. H. Dunnington. Colored Plate IVa, representing a Very Light-Colored Background and the Fundus in the Negro, has been added; some of the half-tone illustrations have been replaced by superior ones and a few have been added.

The volume has been kept up to date, but has not been increased in size, the original plan of presenting a book for the student and general practitioner having been adhered to.

Practical Electrotherapeutics and Diathermy.

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The MacMillan Company, publishers, New York.

The Biology of the Internal Secretions—The endocrine factor in development, in subnormalities, in neoplasms and malignancy, in nervous and mental diseases and in heredity, by Francis

N. Dercum, M. D., Ph. D. Professor of Nervous and Mental Diseases in the Jefferson Medical College; Member of the American Philosophical Society; Member of the Academy of Natural Sciences of Philadelphia. W. B. Saunders Company, Philadelphia and London, publishers.

Sexual Problems of Today—By William J. Robinson, M. D. President American Society of Medical Sociology, President Northern Medical Society of the City of New York, Editor of The American Journal of Urology and of The Critic and Guide, Ex-President Berlin Anglo-American Medical Society, Member American Medical Editors' Association, American Medical Association, Fellow New York Academy of Medicine, New York State Medical Society, Medical Society of the County of New York, Harlem Medical Association, Society Moral and Sanitary Prophylaxis, etc., etc.

Twelfth edition. The Critic and Guide Company, 12 Mt. Morris Park West, New York. Price \$2.00.

Essentials of Medicine—A text-book of Medicine for students beginning a medical course, for nurses, and for all others interested in the care of the sick, by Charles Phillips Emerson, M. D. Late President Physician, the Johns Hopkins Hospital, and associate in Medicine, The Johns Hopkins University, professor of Medicine, Indiana University.

Illustrated by the author, fifth edition revised. J. B. Lippincott Company, publishers, Philadelphia and London.

Principles and Practice of Obstetrics—By Joseph B. DeLee, A. M., M. D. Professor of Obstetrics at the Northwestern Medical School. Fourth edition, thoroughly revised. Large octavo of 1123 pages, with 923 illustrations, 201 of them in colors. Philadelphia and London; W. B. Saunders Company, 1924. Cloth \$12.00 net.

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NEXT ANNUAL MEETING—OWENSBORO, 1925

COUNTY SOCIETY REPORTS

Franklin: One of the most interesting of the monthly meetings of the Franklin County Medical Society was held in the private dining room, Capital Hotel, Monday, Nov. 3rd at noon with the following doctors present—C. T. Coleman president, J. P. Stewart, Roemele, Patterson, Wilson, Budd, Garrett, Jackson, Youmans, Heilman, Fish, Darnell, Minish and Mastin.

The Society had for its guests Dr. Jno. G. South, Minister to Panama and a committee composed of Hon. H. V. McChesney and L. F. Johnson from the Rotary Club representing their work for Crippled Children.

J. G. South was very warmly welcomed and after repeated calls for "Speech" gave a short talk on the excellent sanitary condition of Panama, its Hospitals and their wonderful work not only locally but covering a large adjacent territory and cited one case where a patient was brought in airplane.

The subject before the Society for consideration was the formulation of plans for a Clinic for Crippled Children.

J. P. Stewart spoke on the subject in a brief way and introduced Hon. H. V. McChesney who outlined the plan of action for the benefit of Crippled Children to be carried out by the Rotary Club and their desire to work with the Franklin County Medical Society.

Discussed by L. F. Johnson and L. T. Minish.

G. A. Budd moved that the Society go on record as endorsing the work and agreeing to help in every way possible to arrange for a Clinic at a time to be named by the Rotary Club carried.

A splendid dinner was enjoyed before the business meeting.

Adjourned to meet first Monday in December at which time election of officers for the ensuing year will be held.

Russell: The Russell County Medical Society held its 36th annual meeting in the office of W. G. D. Flannagan, Jamestown, at 9:45 A. M. Rain and high waters prevented many of the physicians from attending. The president, L. D. Hammond, and secretary, J. B. Scholl, being absent. Dr. Flanagan, vice-president in the chair, appointed Dr. Tartar secretary pro tem. After dispensing with regular business the following were elected as officials for 1925: Dr. L. D. Hammond, president; Dr. J. S. Rowe, vice-president, and J. B. Scholl, secretary. For censors, A. V. Neathery, W. G. D. Flannagan, J. B. Tartar. Those present paid their dues for 1925. The meeting adjourned sub-

ject to call of president. Please let me thank this society for electing me secretary once more, while I know there are physicians in the county more able to fill the place than me. Then I thank the God of Abraham, Isaac and Jacob for sparing me through all these years. Since 1889, during all these years, I have had the honor and privilege to be present at all the annual meetings of the society, besides I have been one of the officials in some capacity all these years, being the first secretary and the last one, according to the minutes of the last meeting. Meanwhile I may add that I am the only one now living who was present at its organization in June, 1889, in the old Uncle Bill Jones storehouse where R. E. Lloyd, attorney, now resides. The physicians of those days were always on the job. I will mention their names: Drs. Thomas Gann, Marcus Dutton Hopper, Lieut. W. Dubley Wolford, J. Rod Wolford, Bryon O. Williams, A. Baugh, Alex Jackman, H. C. Jackman, George Acree, Thomas Caldwell Grider, James Monroe Blair, and probably others, who fought the good fight and are now walking the streets of the New Jerusalem, no doubt, telling us poor mortals to keep up the work and faith that was delivered to the saints and beckoning to us to come on up higher to the bright world of light where pure angels will help us do right. Then comes younger physicians tutored by the older above mentioned: Drs. Flanagan, Hammond, Rowe, Neathery, Tartar, McClendon, and other young members who have come and gone on up higher, are singing "What a Happy, Happy Time We are Having Over by the Sea" and "Jesus, Lover of My Soul." Let every mortal, be he bond or free, rich or poor, regardless of white or black, of present or past condition of servitude, lend a helping hand for health work for 1925. Please pardon this long article and mistakes and spelling for the water comes in my eyes when I am writing this to think of the loved ones of the profession that are gone before us. During 1924 there were about 1900 school children and persons examined free of charge by members of the Russell County Medical Society, Board of Health and Public Health Nurses, aided by Judge Edmonds and the Fiscal Court, who deserve much credit.—

J. B. Scholl, Secretary.

Pendleton: The Pendleton County Medical Society met at the Citizen's Bank Building in Falmouth, Dec. 29, 1924, and elected the following officers for the coming year:

President, H. C. Clark, Vice-president, C. H. Kendall, Sec. Treas., B. N. Comer, Delegate, O. W. Brown, Alternate, W. A. McKenney, Board of Censors, Drs. O. W. Brown, W. A. McKenney, B. N. Comer.

The meeting then adjourned to meet on the 2nd Thursday in January at 7:00 P. M.

B. N. COMER, Secretary.

Boyd: The Boyd County Medical Society met at the Hotel Ventura, at six o'clock, December 9. After a dinner and a short program the Society proceeded with the election of officers for the year 1925.

The following officers were elected:

President, H. S. Swope, Vice-president, Proctor Sparks, Treasurer, J. A. Sparks, Secretary, L. H. Winans, Censor, C. E. Downes, C. R. Hunter, Delegates W. L. Campbell, W. O. Eaton.

LESLIE WINANS Secretary.

NEWS ITEMS

Dr. Elmer Henderson, the secretary of the Kentucky-Tennessee Chapter of the American College of Surgeons, announces that its scientific session will be held at the Brown Hotel in Louisville, February 16th and 17th. All members of the profession in the State are invited to attend this meeting.

Clinics will be held at the hospitals of the City on the mornings of both days. On the afternoon of the 16th a hospital conference will be held which will be of special value to physicians, superintendents, and other officials, including especially the trustees of the hospitals of the State. There will be a dinner at the Brown Hotel on the evening of the 16th, at which addresses will be delivered by several distinguished speakers including Dr. Pollak of New York. The scientific session will be held on the afternoon of the 17th and on that evening the public meeting will be addressed by Drs. Edward Jackson, of Denver, Allan Craig of the College of Surgeons, Chicago and Villary Blair of St. Louis.

These meetings will be of great interest and value not only to those who are practicing any of the branches of surgery exclusively but also to the younger men who eventually expect to devote themselves to such practice, and to general practitioners who desire to keep in touch with modern advances in surgery.

Those interested may secure programs by writing to Dr. Henderson.

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KENTUCKY MEDICAL JOURNAL



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JUST READY

Vaquez on the Heart

This American edition is two years newer than the latest French edition because Dr. Vaquez revised and in a great measure rewrote his book in order to make the American edition present today's knowledge of cardiology. To radioecopy of the heart he added his latest findings, made in conjunction with Bordet, and the new table of the diameters of the seporate auricles and ventricles. He has rewritten a large part of the chapters on heart failure, treatment, hypertension, and complete arrhythmia. He has rewritten the entire chapter on bradycardia and added a chapter on coronary thrombosis. The chapters on endocarditis, pericarditis, myocarditis and congenital lesions he has enlarged, summarizing all the recent work on gallop rhythm and the radioecopic studies of the effects of exertion on the heart.

The French have always excelled in their power of clinical description and one of the most delightful features of Dr. Vaquez's treatise is the vividness of his clinical pictures. Nothing could be more graphic, for instance, than his description of the forms of angina pectoris. With this book many of the difficulties connected with the examination, diagnosis and treatment of diseases of the heart disappear. There is nothing indefinite. The method of procedure and examination is very clearly given; the interpretation of the findings so as to formulate the diagnosis admits of no equivocation; and the course of treatment to follow is laid down precisely. The introduction has been written by Dr. William S. Thayer, John Hopkins University.

Diseases of the Heart. By DR. HENRI VAQUEZ, Professor of the Faculty of Medicine of Paris. Translated and edited by GEORGE F. LAIDLAW, M. D., Associate Physician to the Fifth Avenue Hospital, New York City. Introduction by WM. S. THAYER, M.D., Professor Emeritus of Medicine, Johns Hopkins University. Octavo of 743 pages. Illustrated. Cloth. \$8.50 net.

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

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No. 3

EDITORIAL

A LEADER GONE

The medical profession of Kentucky joins with our brethren of the optometric branch in regretting the passing of the senior T. J. Howe, long a notable figure in the State.

Mr. Howe was one of those men who learned optometry as a trade and lived to see it develop into a profession. Long prominent in the American Optometric Association, he became the leader in Kentucky of those who sought to bring about the formation of a board of examiners in optometry separate from the State Board of Health, which has control of all the other healing cults as well as of licensure for the regular medical profession. Thoroughly sincere in his contentions he conducted a noteworthy campaign over a number of years but finally at the session of the General Assembly in 1920 he became convinced of the important principles underlying medical licensure which have been long recognized in Kentucky and was the leading exponent of the splendidly effective legislation passed that year which recognized the broad principle that the State Board of Health, as the guardian of the health and lives of the people of the State, should examine in and pass upon the fundamental branches of anatomy, physiology and pathology and the examiners nominated by each particular school should examine in the branches peculiar to that school. Fortunately, Mr. Howe lived to see the fruition of his work. In no other state have the optometrists more completely emerged from their status of tradesmen into a profession, which by knowledge of optics, gives relief to people with defective vision which is relievable by the fitting of lenses. He saw the result of the post-graduate work done by the optometrists of the State which so qualified them that more than half of them have taken the State examination, although the older practitioners were exempted from it by law. He has seen the glaring and misleading advertisements of the more competent optometrist disappear from our newspapers and the development

of principles of ethics comparable with the best in the other professions.

In all this work he saw the splendid cooperation given by the oculists of the State and realized the interdependencies of the various branches of the healing art.

Mr. Howe would have been a notable character in any profession.

DOCTOR STEINBERG

Dr. Sol A. Steinberg died at his residence in Louisville on January 14th.

Limiting his practice for many years to diseases of the skin, Dr. Steinberg was, although a young man, a recognized authority. Simple, quiet, industrious, he worked far harder than it was possible for one to do and preserve his own health. Dr. Steinberg was a thoroughly successful practitioner. By the use of all modern scientific means, he arrived at a diagnosis and gave effective treatment.

His successors in this difficult branch of practice should learn from his example not only the value of scientific attainments and indefatigable service to their patients but the necessity for recreation and physical care that are essential to modern office practice.

INTERNSHIPS IN ARMY HOSPITALS

The Surgeon General of the Army has issued a most interesting program of instructions for internes in Army hospitals. The duration of the course is twelve months. The program carries a very complete instructive service covering practically all the fields of medicine and will particularly qualify young men who desire it for the interesting career of an Army surgeon. Internes reside on the hospital reservation in quarters designated by the Commanding Officer and each of the hospitals will have a Training Officer who will be in close supervision of their studies. The course provided complies with the requirements of all the State examining boards and will tend to especially qualify men for taking these examinations.

The JOURNAL calls the attention of the profession generally to the desirability of internships at the splendid general hospitals of the Army so that they can tell the young men who are in school about it.

OFFICIAL COMMUNICATIONS

Some days ago my attention was called to an article in the January number of the JOURNAL. I refer to the resolutions recently passed by the Logan County Society relative to an increase in our annual dues.

The auditing committee of which the writer was Chairman, was asked if we could not suggest ways and means by which more money could be had for current expenses. This was prompted by the fact that various members complained that articles sent to the JOURNAL were not published promptly. This, the Editor explained, was due to the fact that the amount of money at his disposal, was not sufficient to publish promptly all articles received and that in many instances, a considerable length of time elapsed between the receipt of an article and its publication.

The committee did examine as thoroughly as it was possible in the time allotted, the books, vouchers, and all cancelled checks and found that in some branches of the organization the actual expenditure had been 25 per cent over the preceding year, this could in no way be charged to mismanagement or reckless extravagance. For instance, there were more suits to defend, the lawyers asked larger fees and etc. The price of paper and actual running expenses of the office had increased in proportion to other branches of business.

I will say that your committee was not unmindful of the fact that an increase in dues would in all probability not meet the approval of every member, but after a hasty resume, (which was all we could do in the short time at our disposal), we did suggest a raise in dues for the reason, that it was apparent from a superficial examination that in order to keep our Society and JOURNAL up to the standard, it was necessary to have more money, and we further felt that a full and free discussion would bring out some plan by which this object could be attained, but none was forthcoming. While we are in no wise guided by what other State Societies do regarding dues, let me remind you that our dues are quite low as compared with the majority of states, as some reach twenty-five dollars, and it has been noticed that when ever the dues were raised there has been a corresponding increase in membership.

The article refers to "Blaze the way that others may see our good works and may follow after." If we should sit by quietly and not improve our opportunities, and this takes money, I am afraid we would not have many followers and our good works would be few and far between. I don't think it can be charged that our Society is subjected to annual fits of madness, or that it can be charged of being recklessly extravagant. It is perhaps, true that organizations may spend money sometimes injudiciously, but even this does not apply to the management of the Kentucky State Medical Society, nor can we be in anyway charged with joining in the maelstrom of money spending.

The same article suggests the elimination of the high priced stationery, costly stenographers and Medico-Legal committee. This all sounds well and in fact would be a good thing but unfortunately these things cannot now in this day and time be done away with without serious impairment of the effective organization that the members have so successfully striven to build up—the Medico-Legal department did cost five thousand, but at the same time, more suits were defended and in order to win good lawyers must be had. The official stenographer is nowadays almost as important at a meeting as the Secretary, and it is hardly conceivable that any doctor or doctors would for one moment question the advisability of such services. The costly stationery unfortunately is not to be found in possession of the State Society as all letters received by the writer from officers of the Society have been on plain, cheap paper.

Criticism is alright if of the constructive type, but to say that we are opposed to this or that simply because a few dollars might be spent that would increase the efficiency of the Society and keep abreast with the times is a policy that if adhered to would soon find us in a state of lethargy that even Gabriel's trumpet would fail to arouse.

Respectfully

Lexington, Ky.

A. H. BARKLEY.

YOUR BUSINESS.

The affairs of the Kentucky State Medical Association are your business. Unless your dues have been paid to your county secretary this is the last issue of the JOURNAL which will reach you until they are paid. It is difficult to understand why it is necessary to say this each year to doctors who are members of all sorts of fraternal organizations, who carry insurance policies, who pay taxes and who know that the law requires corpora-

tions to conduct themselves so they are able to make definite reports of income along business lines.

Thoroughly conversant with the management of other State Medical associations we know that ours is conducted on an effective basis. No other association gets the same amount of service for as little cost. The publication of the JOURNAL alone costs more than each member pays. Of course, our advertisers make up the difference. Last year our Medico-Legal affairs cost half of the income from the membership. We trust this was an unusual year but we feel sure that the members who received the benefits from the excellent work of the Medico-Legal Committee are not disposed to be critical of this splendid work. Suits have been brought against some of the very best men in the State. Practically everyone of them has been entirely without justification but the defense of a malpractice suit, however unjust to an individual, rarely costs him less than \$1,000, while the Association, through the splendid management of Mr. Forcht, has managed these cases for an average of a fourth of this amount. It is a curious commentary on our court system that the cases which have been decided adversely have been among the least meritorious, as a matter of fact.

The profession needs to maintain its organization on a highly effective basis now as never before. It needs the really thoughtful consideration of all of its members in helping to solve the tremendous problems that confront it.

If you have not already done so, will you not mail your dues to your county secretary as soon as you finish reading this?

Spontaneous Pneumoperitoneum in Perforated Gastric and Duodenal Ulcer.—Free gas in the peritoneal cavity was found by Vaughan and Brams on roentgen-ray examination in thirteen of fifteen cases of anatomically proved acute perforation of gastric or duodenal ulcer and is rarely seen in any other condition which can be confused with perforated peptic ulcer. The free gas has been seen as early as two hours after the acute perforation occurs, and but a small quantity of air is necessary for its demonstration. The presence of free air in the peritoneal cavity is demonstrated by observing a clear, distinctly bright zone which shifts on change of posture of the patient. The sign is of great value because it makes possible an early and definite diagnosis without danger or discomfort to the patient. Earlier operation is possible as a result of the earlier diagnosis which this added method of examination makes possible.

ORIGINAL ARTICLES

THE TREATMENT OF GALL BLADDER INFECTIONS: IS THERE A MEDICAL TREATMENT?*

By WILLIAM A. JENKINS, Louisville.

The best thought and endeavor of the medical profession both surgeons and internists, have been focalized and concentrated on this important subject for the past two decades. Some new methods of investigation have been discovered. Some new knowledge has been obtained. Our ideas along these lines have been moulded, changed and reformed. This being the case, it would perhaps, be best for us to pause just at this point and review this topic in the light of recent events.

Inflammatory processes may begin in any part of the biliary tract. They may remain local, or become generalized; or, the generalized inflammation may clear up and leave a focalization behind. In the bile ducts in some instances. In the gall bladder in a large percentage of cases.

From the standpoint of etiology this condition is always produced by an infection (micro-organisms). Although it is true of course that lowered resistance, lowering the threshold of physiological activity by whatever means, this may be brought about with resultant changes in the chemical composition, physical consistency (viscosity) of the bile, interference with the free flow of the bile stream, etc. All act as predisposing causes. However, these things merely make ready the way. They prepare the soil. The real cause is micro-organisms. A great variety of micro-organisms are capable of invading the territory under discussion. The most important ones are about as follows (enumerated in the relative order of their frequency)—Streptococci, Colon Bacilli, Typhoid Bacilli, Pneumococci and Staphylococci.

The channel of the infectious material is another point of interest about which our ideas have undergone considerable change recently. We have always recognized the following as possible routes. (1). The Systemic circulation (the hepatic artery). (2). Through the portal system (venous channel); (3). The gastro-intestinal tract up through the ducts (the ascending route); (4). Progress by contiguity of structure (contamination or transperitoneal channel). First infection through the systemic circulation—(hepatic

*Read before the Kentucky State Medical Association, Louisville, Sept. 22-25, 1924.

artery). At first we thought this was a rare, or occasional road. Now we believe it to be the commonest and most important of all. We have noted with interest that many general, or systemic infections with localizations remote from the liver tend to become transplanted to the biliary passages and the gall bladder. Also the tendency for certain types of micro-organisms (streptococci) localized in structures far removed from the liver to find their way with unerring certainty to the gall bladder (e. g. streptococcic tonsillitis). The specific or selective action which certain types of streptococci localized in a given area have of finding their way to certain definite structures in another part of the body e. g., an abscessed tooth, later the infected kidney with stone. Repeated attacks of severe tonsillitis; years later gall bladder infection and gall stones. We are indebted to Dr. Rosenow now of the Mayo Foundation for his brilliant and convincing investigations along these lines. Another point bearing out this general idea is the fact that recent investigations have tended to show conclusively that the lymphatics in the neighborhood, and the gall bladder walls show evidences of infection before the bile is involved.

(2) Infection by way of the portal system, is not at all uncommon. Micro-organisms being carried from the gastro-intestinal tract directly to the liver by the portal system.

(3) The infection may be carried from the gastro-intestinal tract directly up through the gall ducts, the so-called ascending type of infection. Carmine introduced into the rectum has travelled contrary to peristaltic movements and has appeared at the external opening in cases where the gall bladder has been drained. Infection by this channel is perhaps relatively uncommon.

(4) Infections carried by contiguity of structures, the so-called transperitoneal route may perhaps furnish us with an occasional case.

Granted that infection has taken place, what happens then? How does the disease develop and manifest itself? Great change of opinion has taken place here. At the present time I am sure that the leading internists and surgeons are agreed that the infection occurs in early adult life, or perhaps in many instances even in late childhood, lies dormant or latent for many years, or the symptoms are irregular, indefinite and poorly understood. As the years pass, however, the symptoms gradually become insistent and prominent. Finally the terminal stage approaches, the stage of complications where the diagnosis almost forces itself upon us. This state of affairs seems to justify the criticism that "the

disease begins in youth and we treat it in old age."

Now let us analyze and examine this process a little more in detail. For purposes of description and discussion let us divide the history of this disease into three parts. First, the implantation of the infection. This may be very prominent, almost dramatic, e. g., in a severe attack of typhoid fever or pneumonia we may suddenly have symptoms of involvement of the liver, pain, jaundice, tenderness, bile in the urine, etc. Or an attack of so-called catarrhal jaundice which probably means a low grade infection or, the implantation of the infection may be insidious in its onset, being produced by micro-organisms brought to it from a distant and perhaps hidden focal infection.

Second stage. The second stage is usually spoken of as the latent or quiet stage. As we compare notes and look back over our cases we are forced to the conclusion that this infection which began in late childhood or early adult life has been gradually progressing throughout the years. The sub-acute and chronic forms of biliary infection are not readily recognized. This is particularly true of the sub-acute type. It is often overlooked, neglected or not recognized, and thus much valuable time is lost. The physical signs and clinical symptoms are fugitive, indefinite and insidious in their onset, at this stage and yet they are of the very highest importance to the thinking physician. After months of this sort of thing the patient may call the doctor's attention to the fact that he has a continuous dull, heavy pain in the epigastrium, running around under the ribs toward the right side. He declares that exertion, forceful body motions, and even deep breathing increases the pain, and it is always accentuated when he has one of his "indigestion spells." As time rolls on, the patient has to go to bed with one of his spells, vomiting occurs, and the next morning the doctor finds that he has some temperature. A little later, the doctor is called out of bed at midnight to administer a hypo of morphine, his patient is suffering so intensely. Now the doctor is a bit worried. He asks some questions, gives the patient a good dose of rhubarb, calomel and soda, followed by oil, or a saline the next morning, and he leaves word that the patient is to have no food and must keep quiet for twenty-four or forty-eight hours. In two or three days the patient is again all right, and still the doctor has not recognized the true condition. The disease is spoken of as "gastralgia" or it is known by the meaningless and abominable term, "stomach trouble." I wonder how many of us here today have treated cases of "stom-

ach trouble" like this? Among the earlier symptoms, those referable to the gastro-intestinal tract are most pronounced, e. g., indigestion, fullness, gas distress, often even pain, slight nausea, belching, heartburn, biliousness, foul taste in the mouth, pain in the right hypochondrium with a heaviness or dragging sensation and constipation. These symptoms are irregular and recurrent. They occur off and on for years; by and by the patient begins to have attacks of spells of indigestion that are more pronounced. The individual becomes a soda taker. He is afraid to eat on account of pain. Although food seems to bear no special relation to the symptoms. Overeating or a full stomach may, however, occasionally precipitate an attack. The dyspepsia as some writers say, is qualitative rather than quantitative, that is some single standard article of diet may seem to the patient to always bring on trouble. Slight jaundice may appear, dopiness or so-called auto-intoxication shows up with headaches, etc. This state of affairs may continue for a number of years, and then we pass into the stage of complications. Now we may have adhesions, contractions, obstructions, pancreatic involvement, bile duct obstruction by stones, pus, gangrene, perforation or peritonitis.

Now from the foregoing it is very evident that the early stage is the time to obtain benefit from treatment. Therefore, we say to obtain the best results in this class of cases our routine custom should be about as follows: (1) Investigate the case early (very important): (2) Take the history carefully, reaching back some years (exceedingly important and valuable). (3) Make a careful and detailed physical examination (always important, occasionally furnishes points of value). (4) Investigate the gastro-intestinal tract thoroughly, (a) Gastric analysis; (b) Duodenal lavage by means of the Lyon tube with microscopic chemical and gross methods of study, (of considerable value). (5) X-ray studies of the gastro-intestinal tract and biliary regions (occasionally valuable). (6) Functional hepatic tests and blood chemistry examinations (occasionally valuable).

TREATMENT.

The chief indications for treatment, of course, are: first, to whip out the infection; second, to adopt measures that will maintain efficient biliary drainage at all times (suppuration rarely occurs if natural drainage is good). Third, to prevent complications.

We shall consider the subject of treatment under three heads: (1) The acute attack; (2) the chronic stage; (3) the stage of complications.

First: If the stomach is full, it should be emptied. The best means of accomplishing this result is to have the patient drink hot water freely and copiously. Introduce the finger or a spoon back into the pharynx if necessary, to start the process of emesis. Keep this sort of auto-lavage up until the water returns clear, the stomach pump is rarely necessary. The hot water cleans out the stomach and at the same time, sedates the mucosa. If the nausea continues, use small repeated doses of menthol or 30 drops of a mixture of equal parts of spirits of camphor and spirits of chloroform in a little cold water at intervals. Best of all perhaps is 10 drops of pure chloroform on a teaspoon of shaved ice, repeated as judgment dictates. If violent pain and nausea persists, and does not respond to the above line of treatment, in rare cases small doses of morphine by hypo may be necessary. Local applications are of some value, if there is much tenderness. For example, hot compresses or applications of mustard. Purgatives should not be given by the mouth at this stage, as the condition may become surgical. No food should be given for 12, 24, or 48 hours, depending on the case. After two or three days, daily colonic flushings with hot normal saline solution is excellent. As soon as the stomach quiets down and the pain and nausea are relieved, we should begin the use of salines. Effervescent citrate of magnesia is palatable and excellent, dram doses of sodium phosphate in four to eight ounces of hot water, every four hours is good, use the plain salt or the granular effervescent form. Some men like a dose or so of castor oil just at this stage. Hexamethylene grains, 30 or 40 per day. The Formaldehyde fraction of this drug acts as an antiseptic. The above mentioned dose will have an antiseptic action in the gastro-intestinal tract. It will show in the urine in a strength of 1 to 5, or 6 thousand and will quickly clear up pus therein. It is eliminated by the walls of the gall bladder and the biliary passages into the bile. It is found in the cerebrospinal fluid in two hours after its administration by mouth. It should be used in every case. Salol (Phenyl Salicylate) is also useful in the same way and in about the same way and in about the same doses. Salol is not changed until it reaches the alkaline pancreatic juice in the duodenum. It is then split up into Salicylic acid and Phenol, both of which substances are antiseptic in action in the intestinal tract, the liver and the blood. The urine should be watched while using this drug. It becomes dark mild phenol toxicity is present, the salol should be discontinued.

Usually about the second day we begin to give food by mouth, cautiously, using such things as hot weak tea, buttermilk, gruels made from cereals, etc. Very gradually returning to the customary diet, as the patient improves. The salts of soda or magnesia or a combination of these should be kept up at appropriate intervals until the patient is well. So likewise should the urotropin. If we are aware of the identity of the offending organisms, vaccines or bacterines (stock or autogenous) should be used after the more acute phase is passed.

Where the infection is not a local affair, but is part and parcel of a systemic infection, is in fact, a complication or sequel of such infection, the treatment is the same. It is modified, of course, by the condition and possibilities of said infection in a given patient.

Second: Treatment of the sub-acute and early chronic stage. The gastric crisis of this stage should always be treated along the lines laid down above, according to their severity, but we should not make the mistake of stopping here. To treat the attack and do nothing in the interim, as is too often done, is neither scientific nor satisfactory. In the first place, we must take strict account of this patient's metabolism. We must see what classes of foods he can handle the best. We must, if possible, ascertain by the well-known tests what degree of functional impairment is present in the liver. We must know whether the kidneys and the intestinal tract are participating or not. And we must at least try to find out whether it is a temporary or permanent impairment that we are dealing with.

All of this you see, renders our problem more complex, and necessarily prevents us from laying down any iron-clad inflexible rules that will apply to all cases. Yet in the main we may outline, with considerable confidence, certain specific indications, which will prove of the highest value, especially if formulated in the light of scientific facts, revealed by the investigation of the patient's metabolism. Briefly, the chief of these indications are as follows:

(a) Diet. In most instances it is best to cut down the nitrogen intake. This in a measure lessens the strain of the liver by diminishing its work. The extent to which this must be carried is determined by estimations of the capacity of the patient to eliminate nitrogen. All greasy and acid foods should be eliminated, as in a great many instances we have hyperchlorhydria as a symptom. A diet consisting chiefly of milk, cereals, and the simpler vegetables is good as a standard. We may add to or vary this as we study the patient's idiosyncrasies and his tolerance.

Personally, I think the less meat the better, especially we forbid tripe, sweet breads, veal, liver, lobster, crabs, potted or deviled ham, fresh pork and sausage.

(b) Rest. Violent exercise or hard work increases the liability to acute attacks, so a modified rest treatment is best in the beginning, allowing mild or moderate exercise, as the patient improves. Great stress is laid on the value of rest at Carlsbad, where they are said to treat from 10,000 to 15,000 patients a year.

(c) Duodenal Lavage. Duodenal lavage by means of the Lyon tube is of considerable value in this stage of the disease. At first the procedure or drainage as it is commonly called may be carried out daily or every other day for two or three weeks, then perhaps twice a week for a few weeks, according to the indications. Rest 4 to 6 months, and repeat.

(d) Drugs and the Mineral waters. Hexamethylenamine and Salol are to be tried in the dosage and with the precautions mentioned above. The value of salines and alkaline minerals in solution in water has been recognized almost from the dawn of medical history. They tend to neutralize the excessive acidity of the gastric juice. They reverse temporarily, the osmotic current in the mucosa. They squeeze out the watery elements, thus reducing stagnation and congestion in the mucous membranes and the blood vessels of the intestinal tract, and finally, they relieve congestion and portal tension in the portal circulation. They reduce the catarrhal process in the stomach and intestines. They render the bile more fluid and in a measure, stimulate its flow, washing out the liver as the old practitioners call it.

The salines must be used freely, frequently and best on an empty stomach, say one-half hour before breakfast, mid forenoon, mid-afternoon and a while before retiring. Patients may frequent springs or resorts, where the natural waters abound, or they may, under the direction of a physician, procure the chemically pure mineral salts and add measured quantities of water, and take this at appropriate intervals. The sodium salts are the best, the phosphate of soda, the sulphate of soda and the bicarbonate of soda. The sulphate of magnesia is also excellent. A good working formula would be about as follows: C. P. magnesium sulphate, 2 parts C. P., sodium sulphate, 2 parts, C. P., sodium bicarbonate, 2 parts, dose at teaspoonful to a tumblerful of hot water. The chemically pure artificial Carlsbad salt is perhaps as good as any.

The amount of water and the amount of salt used per day must be under the supervision of a competent doctor, as you may do more harm than good by using too much or too little. If the above means are properly used, a very large number of the sub-acute cases may get entirely well. In other cases, we may arrest the pathologic process and relieve all the symptoms.

If your patient after three to twelve months of the above methods, depending on the type of case, fails to improve, perhaps loses weight slowly, the attacks are still present, and may be severe and frequent, moderate fever is still present during the crises, strict medical treatment should now be abandoned, and the case passes on into the next stage or phase.

Third: The stage of complications or the late chronic stage. Whenever a given case reaches this stage of the disease, such a case should be managed conjointly by the internist and the surgeon. Suppose the case has persistently resisted intelligent medical treatment, and belongs to one of the following types:

- (a) Chronic cholangitis without stones.
- (b) Chronic cholangitis with stones.
- (c) Chronic cholangitis with stones and possible adhesions or other complications.

Now in these instances, as a rule, some form of surgical procedure may be decided upon unless, of course, some serious trouble of the heart, blood vessels, or kidneys which would render surgery dangerous, is present. But in all of these types, surgery must be followed by prolonged medical treatment. For in a great many cases, as all of you know, you may operate and find no stones, and still the operation be justified. You may operate and remove the stones; and in either instance the crises or attacks may recur just as before the operation. And in addition there may be adhesions, hernias, or fistulae, as a result of the operation.

So then I repeat, when the critical time comes, what is best to be done, must be decided by the internist and the surgeon conjointly. And if the best interests of the patient is to be served, both of these men should be skilled and experienced in their respective lines. Work of this class is beyond the scope of that tenderfoot in surgery, the occasional operator.

Empyema, gangrene, rupture with or without peritonitis are complications that are prone to occur all too frequently at this stage of the game, constituting a type of acute surgical abdomen.

In the face of such complications, immediate surgery offers a chance, in most instances, however, the time for permanent good is past.

CONCLUSIONS.

The good that the internist can do in infections of the biliary tract is:

1. To learn how to recognize them early.
2. To learn how to treat them when reeognized.
3. He must get the fact firmly fixed in his mind that with but few notable exceptions, all infections of the biliary tract previous to the stage of complications, are medical and every reasonable endeavor should be made to cure them by medical means.
4. He must learn that complications, the events which commonly bring the surgeon into the case, are not infections per se, but are the result of infection and are in every instance, preceded by long periods of disturbance in which medical measures should be given a thorough trial.
5. He must learn that even in protracted and progressive cases, the intelligent and up-to-date internist may, by clinical means, forecast serious complications and in a measure at least, forestall them by calling a surgeon into the case, before the pathology has progressed to the point where it is obviously impossible to do the patient any material good.

DISCUSSION.

B. F. Robinson, Berea: I want to say first that I appreciated very much the discussion of this very important subject, however, it seems to me from what I have learned of gall bladder diseases that they are as often mistreated as treated.

It is true that we fail to make our diagnosis early enough and the trouble is that cases come to us, as you men well know, complaining not of gall bladder condition, but complaining of stomach trouble or of some other digestive disturbance, and they are treated for such things and the real pathology is overlooked. Instead of getting hold of these cases in time they have drifted beyond the point where they could be cured surgically. When the gall bladder and the ducts are equally diseased the patient is helped very little by drainage or removing the gall bladder. That is why they have to go back to the internist for treatment from time to time the rest of their lives. If this class of patients is cured, gall bladder surgery must be done early.

A. D. Willmoth, Louisville: I have listened to a great many of the remarks of Dr. Jenkins and those who followed him with considerable interest relative to the condition of the gall bladder. I fully agree, being a surgeon, with Dr. Jenkins that there is a medical treatment for gall bladder diseases. I am not a surgeon who believes that everybody who comes to me needs a knife put on him, not by any manner of means.

A very large per cent of the people who come probably would do just as well without a knife. There are cases, however, in which surgery is certainly indicated.

One of the most striking illustrations of that type of case is the post-typhoid patient. I can recall some very clear cases that came to me with gall bladder diseases that had been treated medically, and those patients developed the second attack of typhoid fever. They were evidently typhoid carriers, and those people are in their graves today. I regret exceedingly that I did not do some form of surgery for them.

Remember one thing, that when you are dealing with the end products or the end results of your infection, a removal of the gall bladder is not going to cure that patient. Why? Because you are not dealing entirely with a diseased gall bladder wall; if you were it would be easy for the surgeon to get rid of it. That is not so difficult. But you are dealing with a chronic pancreatitis, a chronic condition of the liver, and taking the gall bladder wall out is not going to relieve that patient of his symptoms. I have a number of them now that I expect are taking medical treatment from somebody whose gall bladders I took out. They are trying to get relief from the conditions that are there. They are a class of patients who have the end results of a long-continued infection in their system that has deranged not only the liver but has deranged particularly the pancreas, and if you take the gall bladder out in many of those, if that gall bladder is not materially damaged you have destroyed your hope of draining those cases, except with a most extreme and difficult piece of work.

I believe that in most instances we don't drain our gall bladder cases long enough. I can recall very clearly seeing a number of cases, many, many of them, in the hands of that master surgeon, John B. Deaver, who placed in a tube and left it in their common ducts for as much as six months, and I remember I one time asked him if he ever had a tube that rotted and broke off in trying to remove it. He said he never had. I never had the nerve to leave one that long, but I am convinced that the longer drainage you use there, the better off it is for the patient, because you primarily start out to drain that patient's system and to drain a chronic infection, and the longer you keep your drainage tube in that gall bladder, provided the bladder wall is anything like healthy, the better; if it is diseased, thickened, we all agree it had better come out because of the dangers of malignancy and it is no longer an organ that will assume its normal function again and might as well be removed.

J. G. Carpenter, Stanford: It seems to me that there is a new specialty to be opened up, that of a general practitioner. My experience has been like that of Dr. Jenkins. I have never heard of a case in my practice that needed surgery. I have been looking for this ever since Dr. Marion Simms did his first operation. I have never found the frequency of gall stone or gall bladder surgery that other doctors seem to have found, and I often wonder is it correct. I have seen some cases in the practice of other doctors and surgeons which I thought did not need surgery, surgery was premature, and they would have done better in the general practitioner's hands.

The sad thing to me in the profession is that so many men are specializing before they know general practice and before they know pathology. It is now said of the surgeon in many cases that he knows no pathology, he knows nothing of the action of drugs, he knows no diagnosis, he just cuts his way through, and finds out after he cuts. So let us be general practitioners, better diagnosticians, and for God's sake do unto our patients as we would have done unto ourselves.

R. A. Bate, Louisville: Mr. President and Gentlemen: This most excellent paper and broad discussion certainly must be satisfactory to every one. I don't see how any one could fail to agree with every word that has been spoken. I think that the better knowledge we have of the causation the more uniform will be the treatment of any condition.

Modern biologic chemistry has brought wonderful proof of the conditions existing here.

We find the other factor is that of metabolism, and even where the microbes are present the resulting condition is an error of metabolism.

The question as to the function of the gall bladder has not been settled, but that the gall bladder has a function there is no longer any question. Various hypotheses have been presented. The one that is perhaps most generally accepted is this: That as the bile is secreted it is received and concentrated by the gall bladder. The acid material passing from the stomach into the duodenum acts as a hormone and relaxes this opening of the constricting substances around the common duct, which permits outflow of bile. As the gall bladder bile is passed out then more hepatic bile is secreted. There also comes from this gall bladder hormones—nuclear albuminous material—the contents of the gall bladder which stimulates as does secretion. What empties this gall bladder? Whether it be from siphonage, whether it be from pressure of adjacent organs as we breathe, or whether it be compression or from its own constricting bands we do not yet know. The indications are that these gentlemen who have used lavage, for instance, get in their second bile (B—bile) that which there is every

reason to believe is from the gall bladder and that this second discharge is from the voluntary contractions of the gall bladder. This seems to be borne out by many observers. No longer is there any question about the secretion stimulating the flow of the contents of the stomach and passing down into the duodenum. The gall bladder, the gall ducts, and the pyloric end of the stomach are lined with exactly the same type of cells, and presumably the same albuminoid material is secreted. Such hormones stimulating gall-bladder contractions. Of course we have the gall bladder acting as a reservoir only when the stomach is empty, when on digestion is taking place or during fasting; bile is secreted rapidly when the stomach is filled, but the bile is not discharged until this hormone passes through and causes the reaction of the sphincter of the common duct.

In those cases where the gall bladder has been removed, there is no longer, perhaps, a hormone secreted of specific origin to quicken or stimulate the flow of this bile or the secretion of the bile. Bile a hepatic hormones administered to animals stimulate the formation of bile and its output. Now then presumably this material secreted in the gall bladder itself is the activating substance or what starts the first flow. When the sphincter of Oddi has been removed, or when the gall bladder has been entirely removed, as Dr. Willmoth stated, we find a dilatation of this common duct, that is if the sphincter of Oddi has not been destroyed in the operation. We have the normal flow then as fast, perhaps, as the bile is secreted by the liver; it is passed out, if the sphincter acts normally during gastric digestion, etc., if there has been an obliteration of the sphincter, more bile comes from the common duct during the periods of greatest secretion.

In the fasting period when there is nothing to stimulate the relaxation of the sphincter of course bile comes on to the gall bladder, but where the sphincter is perfect it is held back by this. If there is no reservoir for it to back up into, naturally we have a mechanical dilatation. Whether there be more than a mechanical dilatation for this common duct is yet to be proven.

Where does the pathology of infection come in? Times seems to point to the fact, that the first statement of Lyman, way back yonder thirty years ago, that this condition is nearly entirely dependent upon the liberation of calcium in some form, is correct. Whether there be microbial complications or otherwise, the calcium element enters into it.

An electrical synthesis takes place with these calcium molecules, and there is a building up of the gall stone in that way.

To limit the discussion to the infection—as a matter of course we must have drainage in those cases where fever and chills and so forth point to a rapid toxemia. There is no question about the immediate results. At the essayist said, we have forty years or more on those cases where there is not an acute infection.

I would like to refer the Society to the General Medical book of the Practical Medicine Series, 1924, just out in which Rovsing gives 530 cases of his own operations in which 60 per cent of the cases had no infection and 40 per cent showed infection.

William A. Jenkins, (In closing): I say to Dr. Willmoth that he will find that Dr. Deaver is not draining gall bladders for five or six weeks now. He is taking them out.

As to just what type of surgery you shall do after you get into this surgical stage, where things are all tied up by adhesions, will be a question for the surgeon, and I should say to you when you get a surgeon in this kind of a case get a good one. This is no place for that tenderfoot in surgery, the occasional operator. I don't intend to outline what shall be done in a surgical way, but the time for doing the most good passes when we get to that stage.

So far as the gall bladder itself is concerned, there are many men nowadays, good men, who are claiming that a gall bladder diseased once is always diseased, that the infection comes through the wall and through the lymphatics and through the arterial circulation. One prominent surgeon has delivered himself of this dictum, that "Wherever a gall bladder is diseased to the degree or extent that surgical intervention is necessary, that gall bladder should be removed."

Roentgenotherapy of Papillomatosis of the Bladder.—Schoenhof attained excellent results with the roentgen rays in a woman, aged 64, with recurring papillomatosis of the bladder. Three papillomas had been removed through a suprapubic incision seventeen months before. Relief from the painful micturition and from bleeding in the bladder was manifest four days after the first exposure, and a complete clinical recovery followed three days later. The roentgen-ray treatment should be preferred, Schoenhof believes, to suprapubic cystomy (22-25 per cent, recurrences, and 3 per cent mortality: Dobrotvorsky). Removal with the cystoscope has a high rate of recurrences (50 per cent in three years). Electrocoagulation, with recoveries in 90 per cent of the cases was followed by a fatal issue in seven cases, and with perforation of the bladder in one instance.

ASSOCIATION OF GASTRIC ULCER WITH CHOLECYSTITIS. CASE REPORT.*

By WALTER L. HUME, Louisville.

That infection plays the initial and major part in the causation of peptic ulcer is now rather generally accepted. At any rate, ulcer and foci of infection in the appendix, gall bladder, etc., co-exist sufficiently often to suggest a relationship. Deaver declares that "any operation for ulcer will fail to give uniformly good results unless primary foci of infection are sought for and removed." In my limited experience several cases of ulcer associated with involvement of appendix have been noted. Now, I wish to report a case of chronic gastric ulcer with co-existing and perhaps pre-existing, cholecystitis and cholelithiasis.

Mrs. J. H.—Female, white, 46 years of age, was admitted to the City Hospital, August 26, 1924.

Present illness began seven years ago with attacks of severe pain over the epigastrium and radiating to the right shoulder, accompanied by nausea and vomiting. Relieved by hypodermics. Attacks were at irregular intervals, not related to food, and with apparently normal health between. Was chronically constipated. No jaundice, flatulance and belching at time of attacks. Was told that she had gall stones. For the past year attacks have been more frequent and she has had constant tenderness over epigastrium with at times a burning, boring pain about midline in the epigastric area.

Physical examination—Positive findings are: Apparent loss of weight and strength, and tenderness over epigastric and right hypochondriac regions. Total weight loss 70 pounds.

Blood normal, urine, negative; Wassermann negative; stomach contents, free Hcl. 87, total acids 140, no blood and otherwise negative.

X-ray—First radiograms show two rings which could be caused by stones. Retake a few days later shows no positive evidence of stones. Fluoroscopic and film examination of the gastro-intestinal tract shows stomach normal in size, shape and position—Peristalsis active—no ineisura, filling defects or adhesions—empties normally showing slight residue at six hours. Duodenal bulb fills normally but is extremely spastic. Marked tenderness over gall bladder but apparently none in the

stomach itself. Appendix visualized and quite tender on deep pressure. Findings are suggestive of gall bladder and appendiceal pathology.

Examination of stool were negative.

Patient was treated on the medical wards of the City Hospital for three weeks with indifferent results. A diagnosis of cholecystitis was made and operation advised.

Operation disclosed a thickened gall bladder full of stones and a large ulcer on the anterior wall of the stomach near the lesser curvature and 1 1-2 inches from the pylorus. Cholecystectomy was performed and the ulcer excised with cautery. The patient's condition at this point was none too good so a cigarette drain was placed along the gall bladded fossa and the incision closed. It was understood that gastro-enterostomy, later, would be advisable and might become imperative. Convalescence was smooth throughout. She did so well, in fact, that she was allowed to go home at the end of two weeks. Indiscretions in diet were followed by persistent vomiting and she was admitted to St. Anthony's Hospital October 15, thoroughly dehydrated again and very weak. On October 17, a posterior gastro-enterostomy was done under local anesthesia. This has resulted in complete relief from symptoms and a gain of sixteen pounds in weight to date.

A wave of surgical opinion originating in Europe and now spreading over this country is tending to discredit gastro-enterostomy as the treatment of ulcer and to advance resection as the operation of choice. The case reported is too recent, of course, to point at all to late results but it is hoped that it may bring discussion of this apparent change in the current of surgical thought as relates to gastro-enterostomy versus partial gastrectomy. When teachers disagree students must choose. I am convinced that "gastro-enterostomy has proven its case." My further purpose in presenting this case is to call attention again to the frequent association of ulcer with pathology elsewhere and to insist that often multiple-stage operations are advisable and that local anesthesia has its place.

DISCUSSION.

John R. Wathen, Louisville: Dr. Hume's report suggests several interesting features for consideration. In our surgical experience doubtless all of us have been brought face to face with similar serious pathological conditions. This woman had lost seventy pounds in weight and was not a favorable surgical subject. When the abdomen is opened and more extensive pathology

*Read before the Jefferson County Medical Society.

found than had been anticipated, it is always a question what should be done. It is far better to primarily perform the minimum amount of surgery and have a living if only partially cured patient, than to undertake more extensive surgery while the abdomen is open and eventually have a dead patient. Dr. Hume kept well within the limits of safety. At the first operation he merely performed cholecystectomy and excised the gastric ulcer. In chronic gastric ulcer the possibility of malignancy must always be considered and cautery should be used in completing the excision. Dr. Hume was also conservative in postponing gastroenterostomy until a later date when it could be safely performed under local anesthesia.

I am firmly convinced that gastric surgery is still in the stage of evolution. American surgeons are not doing everything that should be done for the benefit of their patients. While many cases of gastric ulcer have been reported cured by gastroenterostomy, I am exceedingly doubtful about permanency of the reported cures. When symptoms later return the patients usually consult someone else rather than the surgeon who performed the original operation. During the last few years I have performed more secondary operations than ever before to relieve symptoms persisting or recurring after gastroenterostomy. Jejunal ulcers are quite common and the symptoms thereby produced sometimes distressing. Moreover, gastroenterostomy often fails to relieve the pathology for which it was undertaken.

Consideration of the question of hyperacidity is important in this connection. Not infrequently gastroenterostomy has been performed based upon the persistent presence of gastric hyperacidity, where subsequent operation disclosed the causative pathology in the gall bladder or the appendix.

I am becoming more and more convinced of the correctness of the views of European surgeons, that to be effective gastric surgery must be radical. In this country we have hitherto been too conservative. Finnisier, Haberer, Crile and others have reported many successful results from pyloric resection and partial gastrectomy for ulcer. Finney is also becoming more radical in his operative procedures for gastric ulcer. The reason pylorectomy and partial gastrectomy have been unsuccessful heretofore is that we have been too conservative in the removal of tissue. European surgeons advise that we remove all the tissue we can destroying the nervous mechanism of the remaining portion of the stomach. If necessary we may remove one-third or even three-fourths of the stomach and still be within the margin of safety. We may also remove a large section of the jejunum where required. The results of this radical work have

been excellent, later test of the gastric contents showing no excess of hydrochloric acid.

I am becoming more and more radical in gastric surgery. When a patient presents the typical syndrome of gastric or duodenal ulcer, we have no right to perform gastroenterostomy without further investigation. I have "unhooked" many of these recently where gastroenterostomy had been performed by other surgeons. The symptoms were relieved by appendicectomy or cholecystectomy.

Quite a large percentage of the patients who complain of gastric symptoms are really neurotics. In at least one-third of such patients consulting me neuroses are present. They are not benefited or cured by gastroenterostomy.

M. Casper, Louisville: Dr. Hume has given us a very interesting report. I saw today a patient presenting similar manifestations—cholecystitis with a history of long standing gastric ulcer. Each case of this kind is a law unto itself and requires special study.

We used to congratulate ourselves upon the fact that we could operate through a very small abdominal incision. We long ago abandoned the idea of making small incisions, for the reason that we often found multiple lesions, and to successfully deal with them surgically large incisions were necessary. In the case coming under observation today something was encountered that I have never seen before, i.e., there was a small nodular lesion involving the round ligament which I believe is metastatic. The case will be reported in detail later.

In view of the fact that intra-abdominal lesions are often multiple, when opening the abdomen the surgeon must be prepared to deal with whatever pathology may be found. In the case seen today gastroenterostomy was performed and nothing else will be done until it is determined whether the nodule discovered is metastatic.

Like Dr. Wathen, I believe gastroenterostomy is usually only a temporary measure, and quite frequently has to be "undone" by secondary operation. However, the fact remains that the ulcer patient is often in a state of semi-starvation, and we can improve nutrition and thus save life by performing primary gastroenterostomy.

E. S. Allen, Louisville: I believe we are now practically agreed that gastric and duodenal ulcers are secondary to focal infection elsewhere in the body. Such ulcers are sometimes associated with disease of the appendix, and more rarely the gall bladder. We often see cases of gall bladder disease in which there are no secondary gastric manifestations. However, we frequently see appendicitis associated with gastric ulcer.

Dr. Hume is to be congratulated on the way he handled his case, and especially on the fact that he was able to perform gastroenterostomy under local anesthesia. His patient was dehydrated and weak and local anesthesia was distinctly indicated. There is practically no pain attending such an operation unless the mesentery is unduly manipulated.

As to radical surgery for gastric ulcer: We know that wide resection of the ulcer and gastroenterostomy will relieve the great majority of these patients, therefore I can see no indication for more radical surgery. If sufficient pathology exists to require resection of three-fourths of the stomach, I doubt very much if any benefit will be deserved from operation, and the primary mortality will be greatly increased. There seems to be a tendency on part of certain prominent operators to disregard the fact that the patient is a fellow human being, and ultraradical surgery is being advocated and attempted where it is not required. I doubt if the average surgeon could resect three-fourths of the stomach and have a living patient at close of the operation. Moreover, if malignancy is present, the operation will be unavailing. When metastases have occurred, even if all the stomach is removed, the life of the patient will not be saved. In the cases of gastric and duodenal ulcer that have come under my care, wide resection of the ulcer and posterior gastrostomy produced relief; and so long as I can relieve the patient in that way, I am not inclined to advocate more radical surgery.

Wallace Frank, Louisville: I agree with the last speaker in regard to radical gastric surgery even for the attempted cure of malignancy. The primary mortality from extensive resections will more than over-balance the possible danger of return of symptoms when the ulcer is widely excised and gastroenterostomy performed.

Gastroenterostomy must be primarily considered from the standpoint of whether the ulcer is duodenal or gastric. Sistrunk recently summarized a series of cases of duodenal ulcer ten years after gastroenterostomy alone was performed and reports eighty per cent successful results. Of course, gastric ulcer is a different proposition, on account of the possibility of malignancy; but even in gastric ulcer I believe wide excision is the proper method of treatment. I can see no reason why one-third or three-fourths of the stomach should be resected for the cure of benign ulcer. The mortality from gastroenterostomy is three to four per cent; from radical surgery it is twelve to fifteen per cent. While in some large European clinics there may be a greater percentage of cures, I doubt whether radical surgery would improve results in other communities and in smaller hospitals. We must con-

sider the primary mortality as well as the permanent relief in those patients who live. I believe jejunal ulcers occurred heretofore because we used non-absorbable sutures in performing gastroenterostomy. Since we adopted catgut the percentage of jejunal ulcers is small.

I agree with Dr. Walther that many of the patients who subsequently return with recurrent symptoms represent cases in which gastroenterostomy should not have been performed, i.e., the ulcers were medical and not surgical in type. Many complaining of gastric manifestations are neurotics, and in such cases gastroenterostomy is not indicated. Where gastric ulcer actually exists excision of the ulcer followed by gastroenterostomy will give better results than gastroenterostomy alone.

W. I. Hume, (Inclosing): The trend of the discussion shows that much difference of opinion still exists in regard to the treatment of gastric and duodenal ulcers, and I suppose these differences will continue for some time to come. It seems to me, however, that the advisability of gastroenterostomy has been practically settled. In its favor we have such men as Deaver, Chas. Mayo, Balfour and many others. Balfour reports a series of seven hundred and twenty-five cases of gastric ulcer treated by excision with gastroenterostomy with eighty per cent satisfactory results, fourteen per cent entirely satisfactory, four per cent total failure, two per cent mortality, one and one-tenth per cent recurrences including gastro-jejunal. The mortality, given by Balfour and others, is practically double for subtotal gastrectomy as that for excision of the ulcer and gastroenterostomy.

There is no doubt that cases of acute gastric ulcer belong to the medical man. I think nearly everybody is agreed as to this. It is equally true that chronic ulcer belongs to the surgical side, and just what shall be done will depend on the situation of the ulcer, whether multiple ulcers exist, etc. Multiple ulcers occur in only about five per cent of cases. Where a large callous ulcer is found the chances are twenty to one there are no others. I can see no reason for resecting a large part of the stomach when the ulcer and the pathologic site itself can be excised, and gastroenterostomy then performed. This is usually sufficient to alkalinize the stomach. After gastroenterostomy bile will be found constantly in the stomach, thus the patient alkalinizes himself.

In the case reported the two-stage operation was planned purposely. After completing cholecystectomy and excision of the gastric ulcer the patient's condition was none too good, and we thought it advisable to postpone gastroenterostomy until a later date. The woman was thoroughly dehydrated and had lost seventy pounds in weight. She improved rapidly and felt well

for three weeks, when after dietary indiscretions vomiting returned, she again became very weak and gastroenterostomy was performed under local anesthesia. I believe that in a great many cases two-stage or multiple-stage operations are distinctly advisable. I also think we should employ local anesthesia more extensively than we have heretofore. This woman, with proper post-operative care—diet, alkalies, etc.,—might have been nursed back to health without the second operation. To get the best results these cases must have proper care after operation.

HEREDITARY METABOLISM. A CASE REPORT.*

By R. ALEXANDER BATE, Louisville.

When Alexander Haig wrote his wonderful work on "The Uric Acid Diathesis," he stated that in health there was a definite proportion of uric acid to urea, approximately 1:40. If less than the normal daily quantity of uric acid was eliminated the condition was pathological, because of retention in the system. He described the transmission of such errors of metabolism as "the uric diathesis" or what is now known as hereditary metabolism, due to endocrine dysfunction.

At that time, there was under my observation, a Kentucky family consisting of father and mother and four sons. Three generations of this family had lived on a farm in the sandy valley of a subcarboniferous section under more or less the same psychic, climatic and dietetic circumstances.

The father was six feet tall, spare in build, and quite an active horticulturalist. He was tall; he was far beyond the average. He was the originator of the second crop potato and several other varieties of garden vegetables. In the sixth decade of his life he developed an ataxia of the type described at that time by Charcot as due to uric acid retention. There was no specific element in this case.

His four sons were: two of the paternal type and two of the maternal type. Only one was under six feet tall and three were over six feet; the males on the maternal side were all under six feet in height. The oldest although of the maternal type in feature and flesh, had spastic torticollis at the age of 19 years which still is present at 55 years. An arthritic diathesis has been quite observable in him—arthralgia, neuralgia, and chronic bronchitis with relatively low blood pressure.

The second son most resembles the father

and has always had the gastric and skin manifestations of Haig's diathesis.

The third son is the shortest of the four and is of a more lively temperament and shows the least of the paternal metabolic characteristics.

The fourth, and tallest, shows the vascular changes characteristic of the diathesis with arthritic tendinites and the neurasthenia syndrome.

All five showed practically the same abnormal proportion of uric acid to urea.

Analysis of the father's urine, 4-11-26, 1896:

Quantity (24 hrs.) 960 cc. Color—Yellowish red. Reaction—Acid. Sp. gr.—1.024 (often 1.030). Urea—417.6 gr. Uric Acid—8.1 gr. Sediment—"brick-dust." U. A.: Urea :: 1:52(—).

The entire family have had to live upon anti-uric acid diet and medication for thirty years.

At about the same time this family was under their period of quantitative urinalysis, which was the nearest approach to a basal metabolism test at that time, another family of three brothers, from Alabama, came under observation.

These three, like the other five, were all men of superior intellect, tall and rather spare, and of meditative temperament.

Large fortunes have since been accumulated by both families, which indicates both their mental alertness and perseverance.

The Alabama senior brother had respiratory difficulties bordering upon hay fever and asthma. The turbinated bones were removed. He was sent over the ocean in his 45th year to prevent a collapse.

He now lives in New York, and has since been paralyzed during the sixth decade of life, at the same period as the ataxia in the first case.

The next brother had arthritic manifestations with uric acid renal concretions, the acid dyspepsia of Haig and chronic bronchitis.

The third son had appendiceal pains and gastro-intestinal manifestations.

Their urinalyses showed exactly the same proportion of uric acid to urea as that of the five men of the Kentucky family. The same acidity and high specific gravity.

Once upon opening the office door to let a member of the Kentucky family out, a member of the Alabama family was waiting to enter. Said I, partly in jest, "Mr. F., let me introduce you to your cousin, Mr. Me." Well said one, "I am glad to meet any cousin, as I have no first cousins, but how do you know we are cousins?" Said I,

*Read before the Jefferson County Medical Society,

"Your cellular activity, as shown by the test tube is identical."

Well said one of the gentlemen, "My ancestry was so and so to a fifth grandmother in Pennsylvania named Mrs. S." Said the other gentlemen, "My ancestry was so and so to a fifth grandmother named Mrs. S., of Pennsylvania, who was stolen by the Indians when a child."

This ancestress proved to be the grandmother in common to both families. Basal metabolism now has pointed out much more exactly what was still easy enough of recognition then.

The point is this that the thyroid, parathyroid, liver and kidneys, so concerned in the metabolism and elimination of the nitrogen molecules, was in every instance handed down to the succeeding generation. Pituitary and pineal similarity of functioning is observed in both families.

So that is plain, disturbed nitrogen metabolism, and somatic and psychic resemblances were not inherited, but the endocrine glands responsible for nitrogen metabolism and for physical and mental conformation and cerebration were transmitted. Thus it may be seen diathesis is an inherited ductless gland dysfunction.

In these families a mild hypothyroidia has been marked in each case. A relative excess of suprarenal autacoids in the system would produce some of the same effects by acting as chalones or inhibiting certain thyroid effects. The size of the individuals and disturbed uric acid elimination suggest this.

A pure hypothyroidia would be attended by smallness of size and stupidity which were not evinced in these cases. Suprarenal hormones have a direct influence upon development and renal elimination just as observed in these cases in addition to the disturbed nitrogen metabolism—consequent upon deficient thyroid autacoids.

The anterior pituitary autacoids probably were the actual size determining factors. The dual possibility arises from the fact that the thyroid hormone or stimulative deficiency could be the result of suprarenal chalones or inhibiting chemicals, that stopped activity of the thyroid. So that hypothyroidia and hyper-adrenia would possess many characteristics in common.

It has been shown that an injection of epinephrin into the tissues causes an electrical current of action to develop in the thyroid. A similar electrical current is believed to follow functioning of any ductless gland.

It has been shown that the protein molecule flows with the negative current in alkali-

line solutions and with the positive current in acid solutions.

It is thought electrolytes or certain molecules, are distributed throughout the tissues especially by the attractive force of oppositely charged ions. And that an electrical equilibrium is maintained only by the migration of molecules of different electrical potentiality.

Personally it has seemed the posterior pituitary was the activator of all other ductless glands, and the hormone effect or chalone effect probably depended upon the electrical potentiality of the molecule, which in turn may be determined by the relative acidity or alkalinity of the medium; the medium of course being the fluid in which the cells are bathed. The electrolytes abound in the blood serum.

Perhaps the psychic conditions under which the primary generations lived, together with the diet and hygiene, established the type.

The metabolism, of course, is now well-known to be dependent upon the endocrines. It seems metabolic heredity may be so explained.

Heredity and environment or diet and hygiene determine destiny. The destiny or future happiness of such subjects then becomes dependent upon diet and hygiene together with organotherapy.

The children of those remaining in Louisville appear now to have been in some measure educated out of this diathesis by these means. Out of four grand-children of the ataxic case, one had enlarged tonsils and adenoids, one the acid dyspepsia of Haig.

The treatment, of course, requires generations to remove an endocrine habit, but the key to the health of these families lies in the organs of metabolism, especially the thyroid.

Pituitary substance, hepatic hormones, thyroid and parathyroid secretions, pineal and nephritic principles have all been of service in these cases, but a rigid diet and hygiene with alkaline waters have been necessary in each case.

In the main all the cases may be regarded as instances of hypothyroidia; and the nitrogen elimination constitutes the metabolic equation.

DISCUSSION.

Edward R. Palmer, Louisville: The splendid report made by Dr. Bate should not be permitted to pass without comment, but I rather hesitate to discuss such a very deep and interesting theme. Heredity has always been a hobby of mine. However, I do not intend to speak extensively from that standpoint, but will say there

is a condition somewhat akin to the topic discussed by Dr. Bate, viz., oxahuria, that I have frequently noticed, and quite commonly, it effects the entire family. I have been so much impressed with this fact that when a patient presents himself with oxaluria, I tell him the chances are he is not the only member of the family who has it, and inquiry has often proved this to be true. The condition is one which seems to be due to some disturbance of the endocrine system. Quite recently I saw such a case and took great pleasure in referring the patient to Dr. Bate. These patients come under my observation from the fact that there is generally disturbance of the genito-urinary system in connection with the oxaluria. I tell them that only incidentally are they urological subjects, that they belong to the internist, particularly one who has made a broad study of endocrinology, that it is an endocrine disturbance of some kind that gives rise to the condition.

Dr. Bate made a remark which should be emphasized, i. e., that the inheritance here is not a diathesis, it is not a disease, but it is an inheritance from remote ancestors of a dysfunction of some of the glands of internal secretion.

F. C. Askenstedt, Louisville: I should like to ask Dr. Bates whether examinations were made to determine the proportion of uric acid in the blood. I know he is well aware that the amount of uric acid in the urine is no reliable index to its relative quantity in the blood, but I did not hear him state that any blood test had been made, probably because at the time of the examination of these cases very little of blood chemistry was known. In a recent issue of the *Journal of Biological Chemistry*, Folin and his co-workers have published a lengthy article on their last experiments relating to the uric acid problems. They found that, contrary to general opinion, a uric acidemia does not cause a deposit of uric acid in the liver or other organs, with the exception of the kidneys. (Loose connective and bony tissues were not tested.) In every uric acidemia a large amount of uric acid is temporarily stored in the kidneys, greatly interfering with their functional activity, and hence the excretion of uric acid may be reduced below normal. Destruction of uric acid occurs in the circulating blood only, and is proportionate in its velocity to the amount of uric acid present. When the uric acidemia is thus considerably reduced, absorption of the uric stored in the kidneys takes place, and the kidney function is gradually restored. It will be seen that the quantity of uric acid in the urine is no safe index to the amount in the blood.

An excess of uric acid in the blood may be due, firstly, to an excess of production; secondly, as we have already found, to a retention. Such

an excess of production is known to occur from a rapid destruction of nucleic acid, as when a large number of leucocytes are destroyed, resulting in an excess of purins, of which uric acid forms about 0.9 per cent. There may be a fundamental endocrine disturbance as a cause of an excessive uric acid production, and if Dr. Bate's cases can be actually proven to belong to the productive class, I believe the history of the cases he reports will lend support to such a metabolic disturbance.

R. Alexander Bate, (In Closing): I wish to thank the gentlemen for their discussion. As to the point mentioned by Dr. Palmer in regard to oxahuria: The thymus gland is particularly concerned in calcium metabolism, and of course when there is an accumulation of oxalates in the system oxaluria may be expected to occur. The thymus gland and the liver are particularly to be considered in conditions of this kind. Like Dr. Palmer, I have noticed that oxaluria frequently exists in several members of the family.

Referring to Dr. Askenstedt's remarks: One of the blood examinations—the individual having symptoms of neurasthenia—showed leucocytes slightly in excess of 3,000. The total uric acid contained in the blood I do not know. In this one patient there was evidently considerable leucocytic destruction which confirms the statement made by Dr. Askenstedt. There have been no recent blood examinations made in the other patients.

Surgery of the Sympathetic Nervous System.

—Kummell analyzes the outcome of resection of the cervical sympathetic in 21 cases, and of periarterial sympathectomy in 59 (bilateral in 23)—a total of 23 cervical and 82 peripheral sympathectomies. Improvement was evident in all at first after the decortication of the artery, and the cure has persisted to date in 3 of the 4 cases of Raynaud's gangrene; in 2 of 3 freezing gangrene cases; in one of 3 diabetic gangrene cases; in 3 of 8 trophic lesions in a stump, hand or foot, and a tabetic with trophic ulcers. Lancing pains were cured only temporarily in 2 out of 3 cases. A cure was realized only in 3 of 11 leg ulcer cases, and a roentgen ulcer was not modified. Eczema subsided in 4 of 5 cases, but the 7 patients with psoriasis displayed only transient benefit. In the one case of each, hyperkeratosis and dyshidrosis were clinically cured. The anatomy and physiology of the sympathetic and vagus are discussed, with a colored chart and other illustrations. The sympathetic ganglion just above is the storehouse for the pains from the lesion.

CANCER OF RECTUM IN A MAN TWENTY-FIVE YEARS OF AGE.*

By WILLIAM E. APPLEHAUS, Louisville.

Deaths from cancer of the rectum and anus form about 4 per cent of the total number of deaths from cancer in the United States.

It is generally believed that the large majority of cancers of the rectum and anus occur in the middle aged and elderly individuals. In recent years, however, quite a number of cases have been reported in young adults and children.

The youngest cases are found in statistics gathered by Phifer, which show, six cases in children between the ages of five to ten years, and six cases between the ages of ten to fifteen years.

In 7313 cases reviewed by Pennington, forty occurred under twenty years, two hundred and thirty-five under thirty, and six hundred and ninety under forty years of age.

Sixty-two per cent of the cases occurred in males.

This affection in the young is almost fulfilling rarely a year elapsing between the first symptoms and death.

The case which I wish to report this evening is almost a text book picture.

White. Male. Age 25. Occupation, paper-hanger.

Chief complaint: Excruciating pain in rectum, passage of bloody mucus, constipation, loss of weight and strength, anuria.

Family History. Negative for cancer, tuberculosis and lues.

Past History. Had measles, mumps, chicken pox, pertussis and pneumonia in childhood. Appetite and digestion always good. As a child was quite constipated and as he grew older this condition became more pronounced. Was always very athletic and robust. Seven years ago entered the army, and four years ago passed a satisfactory life insurance examination.

Present History: Never complained of any symptom referable to rectum until June, 1923, when he suffered a terrific, painless hemorrhage from the rectum. Clothes were saturated and the patient was extremely weak for several days. Used a pile ointment and had no further trouble until September 1923 when he suddenly developed acute pains in the rectum. These became so severe that he was forced to quit work and apply hot water bottles to parts to obtain relief.

The belief that cancer does not exist in the young is so universal that many cases of

early malignancy are diagnosed as hemorrhoids because of the youth of the patient, while if they occurred in older patients they would be more readily recognized. This man was operated for hemorrhoids in February, 1924. He was never able to urinate after operation except when sitting in tub of hot water. He then began to pass bloody mucus from the rectum and his pains were greatly intensified. He was admitted to the City Hospital in August 1924.

Physical Examination: White, male adult, rather well developed, poorly nourished and very pathetic in appearance. Head—negative. Chest—negative. Heart—no organic lesions. Blood pressure—112-30.

Abdomen-Pelvis—Abdomen was rigid and painful on palpation. Inguinal glands markedly enlarged and hardened.

Genitalia—No gross defects apparent.

Rectal: Sphincter stood open. There was a whitish, speckled, indurated ring, about one inch thick encircling outlet of bowel. Laboratory: Wassermann—Negative. Urine—amber, amphoteric. Specific gravity 1.016. Albumen—negative. Sugar—trace.

Blood—Red blood cells—2,930,000. White blood cells 10,200. Polys predominating. Hemoglobin Talquist 65 per cent.

Operation: Was operated August 8, 1924 by Dr. Hanes. Under ether anesthesia rectal examination showed marked, hard nodular infiltration of anal, peri-anal and rectal structures extending higher than finger could palpate and involving adjacent structures. About two and half inches up, was a strictured band that almost occluded the lumen.

A section of tissue was taken from around orifice for pathological diagnosis. This was later reported as: Colloid Adeno Carcinoma.

Patient died eleven days after operation and autopsy showed almost complete metastasis. Nearly every organ was found to be involved. The pleural cavities were negative. Peritoneal cavity showed scattered areas in peritoneum covering intestines. The greater omentum and mesentery were studded with nodules.

The pericardium of the heart, covering both ventricles and right auricle was involved. On section the myocardium showed numerous areas. The left lung had one nodule on its lateral surface.

Spleen was negative. The gastro-intestinal tract presented a remarkable picture. The entire large bowel was literally covered with nodules, being very numerous at caecum. The appendix contained several nodules. The small intestine showed scattered markings. At ampulla of Vater was one large nodule lying over opening in mucous fold.

*Clinical report before the Jefferson County Medical Society.

The cardiac orifice of stomach was lined with four circular nodules. The mucosa of stomach contained scattered nodules which had become ulcerated. These were equally distributed along both greater and lesser curvatures. Gall bladder was negative. Liver showed only one nodule 2 mm. in diameter on its anterior surface. Cut sections revealed no further invasion.

Kidneys were negative. However, the connective tissue surrounding the kidneys and hilus contained numerous nodules.

Adrenals were markedly involved.

Bladder mucosa showed only a few scattered nodules. Ureters were not involved.

Prostate—Entire gland appeared to be involved.

Testicles—Left testicle contained numerous nodules along epididymus and in testicle proper. Right testicle showed involvement of epididymus only.

Juxta—aortic and inguinal glands were enlarged and presented granular, pale areas on section.

DISCUSSION.

Granville S. Hanes, Louisville: Attention is called to the fact that, in the case reported, the patient had a severe rectal hemorrhage before there was any great amount of pain. This hemorrhage was evidently not from the cancerous lesion. Hemorrhage is not a conspicuous early symptom of rectal cancer; rarely does excessive bleeding occur in the early stages. In this case I do not believe there was any open lesion when the first hemorrhage occurred. The circulation in the superior hemorrhoid artery and vein was interfered with, on account of the tumor situated higher in the rectum, and the bleeding originated in a granular surface near the junction of rectum and sigmoid; in fact, most early hemorrhages in rectal cancer are from that situation. We might be misled if we considered the cancerous lesion itself responsible for this early hemorrhage.

Most rectal cancers can be fairly easily demonstrated clinically, although sometimes there is no little confusion. Not long since I examined the rectum of a patient without having the least idea at the time that he had cancer. There was great contraction of the muscles surrounding the anal outlet and much thickened, indurated tissues in the anorectal canal. At the second examination I became considerably alarmed and thought perhaps he did have cancer; but it was later proven to be a simple inflammatory lesion. Perhaps the greatest amount of confusion occurs where there are deposits in the rectal walls due to syphilis.

Rectal cancers often cause complete stricture. I have seen such strictures almost oc-

clude the rectal lumen with no lesion of the mucosa whatever. Such conditions are also noted in rectal syphilis. Therefore it may be quite difficult at times to determine whether the lesion is cancerous or syphilitic based upon the clinical findings.

The autopsy record in the case reported is unusually interesting. It shows that rectal cancer in the young cannot be cured; that is, it constitutes an additional evidence of this fact. When rectal cancer occurs in an individual under twenty-five or even thirty years of age, I consider the case absolutely hopeless, and it rarely makes any difference how eagerly the diagnosis is made or the lesion discovered.

I had the pleasure of being in London the past summer and heard the cancer question discussed very freely by some of the most prominent surgeons in England. Mr. Mummery, of St. Mark's Hospital, who has done an immense amount of work in rectal cancer, said in closing his discussion that he did not expect in the future to operate upon a young individual for cancer of the rectum with any hope of cure, that it would only be an operation for temporary relief, that he had no hope whatever of curing a cancer of the rectum in a patient under twenty-five or thirty years of age. I believe his statement to be literally true. I have seen one patient aged sixteen years die from rectal cancer, another aged nineteen and probably half a dozen between twenty and thirty.

In the case reported I was asked why we did not perform colostomy: It was my opinion that the patient would die within a short time anyway, and the only thing to do was to allow him to lie in bed, give him sufficient morphine to keep him comfortable, and let him die as soon as possible, which he did at the end of eleven days.

Inoculation Malaria Not Transmissible by Anopholes.—The starting point of Barzilai-Vivaldi and Kanders' experiments was the observation that sexual forms of malaria parasites (gametes) were almost entirely absent from the blood of patients inoculated with malaria blood. They exposed febrile patients in this group to anopholes, and tried to transmit the disease to others by the bites of the mosquitoes. The results were negative, although subsequent injection of malaria blood demonstrated the susceptibility of the subjects. The authors conclude from their experiments that the malaria treatment of paralysis entails no danger of spreading malaria by this means.

PYONEPHROSIS TUBERCULAR COEXISTENT SYPHILIS, CASE REPORT.*

By L. LYNE SMITH, Louisville.

In the presentation of this case report, the symptomatology and pathological lesions present assume no unusual characteristics; differing from those found in renal tuberculosis involving the bladder, except there has been an absence of subjective symptoms, until the disease had progressed far in its destructive processes.

The patient is a mulatto, within the early thirties, at a period of life susceptible to tuberculosis. Again, it is at about this age that latent syphilitic manifestations may appear. The race seems to be peculiarly tolerant to lues. Consequently, the usual symptoms and complications found among other nationalities are often masked in this race and seemingly many of them appear to bear strongly positive Wassermans with no ill effect.

A general physical examination of the woman reveals no particular evidence of syphilis. Also the case history gives no indications, except there are present two miscarriages—1912 and again in September 1922, from neither of which followed any complications or sequelae. A child born four years ago appears normal and healthy. The delivery of the baby was normal in every respect. However, a Wasserman blood made on both the patient and the husband, in November 1923, was found to be strongly positive.

Until the beginning of the patient's illness, September 15, 1923, she had been a strong, robust woman and was not aware that she had either syphilis or tuberculosis, also there had been a absence of any bladder symptoms up to this date.

It is of interest to note that from the great amount of pathology found, which necessarily must have existed for a considerable length of time, perhaps years, there were no subjective symptoms present. Suddenly, a cyclonic blast of bladder symptoms appeared, accompanied by nocturnal and diurnal frequency of urination, increasing in severity until temporarily controlled by bladder drainage. The delayed bladder symptoms could have been due to the occurrence of a late mixed infection, but most probably can be accounted for as caused by a partial anesthesia of the parts, produced by the syphilitic dyscrasia present.

The specimen exhibited shows practically all of the kidney destroyed, leaving cavities of many sizes. The largest is about 25 m.m.

in diameter, and a portion of this cavity is of parchment like thinness. It is obvious that an overdistention of the pelvis in estimating its capacity or for a pyelographic procedure could prove disastrous.

Unfortunately, the hospital where this patient was under treatment was not equipped with an X-ray Department and for this reason, a pyelogram was omitted.

REPORT OF CASE.

Present History:—Patient moved her residence in September 1923, and in arranging heavy furniture in her room, she lifted a dresser and felt something, as she expresses it, "give away" in her left loin, this was followed by no pain or discomfort, but two days afterward, she began to have urinary frequency and a burning sensation at the end of micturition; also noticed that she began to get up several times during the night to void; the nocturnal and diurnal frequency rapidly increased in severity until the day it became every fifteen or twenty minutes and the night eight to ten times; bladder spasms appeared and also a terminal dysuria; no macroscopic blood was present at any time in the urine. This condition continued for some few weeks, patient finally calling in Dr. O. H. Kelsall, who referred the case to me for examination. The patient was taken to the Red Cross Hospital on November 5th, and was put on continuous bladder drainage and urotropin, 5 grs., every six hours, alternating for a few days at a time with boracic acid, 5 grs., three times daily; light diet.

Past History:—Mumps and chicken pox are the only diseases she can remember having had during childhood, from both of which there was good recovery; in 1912, miscarriage—good recovery; influenza, 1918, duration 2 weeks—no complications, except some few weeks after the illness, she noticed the hearing in the left ear was somewhat impaired; several teeth have been extracted in the last six years gave birth to a girl baby, 4 years ago—delivery normal; September, 1922, suffered a second miscarriage—no complications; some two months before the present illness, there was a feeling of fatigue and inability to perform work, which heretofore had always been accomplished with ease and pleasure.

Menstrual History:—Menstruation always normal, twenty-eight day type; duration three days; free of pain.

Family History:—Does not remember anything about parents, having been left an orphan in infancy.

*Clinical report before the Jefferson County Medical Society.

GENERAL PHYSICAL EXAMINATION.

Patient is a well-nourished female mulatto, age 36; married; height 4' 8"; best weight 118 pounds, some few months before illness; approximate weight at entrance to hospital 110 pounds; pulse 120, regular, but low tension; afternoon temperature 99.5; blood pressure—systolic 98, diastolic 65; visible mucous membranes somewhat pale; skin normal; hearing good; sight good; head and neck normal; tongue moist, slightly coated; mouth—dental caries in several teeth; throat—tonsils pathologic; osseous system negative; glandular system—several of the post cervical glands palpable; axillary glands palpable; femoral and inguinal glands not palpable; epitrochleas not palpable; reflexes—patella diminished; biceps and triceps normal; Rhomberg negative; Babinski negative; pupils react to light and accommodation, sensory changes none; vaso-motor changes none; muscular development good.

CLINICAL AND LABORATORY FINDINGS.

Pulse rate remained constantly high while the patient was at the Hospital, ranging from 100 to 140.

As long as the bladder drainage was good, the temperature curve would range from 98 in the morning to 99.5 in the afternoon; at any interruption to the free drainage, such as inability to retain the catheter from bladder spasms, etc., the temperature would rise to 101-103.

Urine:—Repeated urine examinations made during hospitalization of patient, with a fairly constant range of specific gravity at or below 1010; serum albumin from a faint trace to 4 plus; epithelium moderate amount; erythrocytes occasional; leucocytes average from 2 to 4 plus; several catheterized specimens examined for tubercle bacilli—none found.

Blood:—Hemoglobin (Tallquist) 72 per cent; leucocytes per cu mm 10,200; lymphs 2 per cent, eosinophiles 0 per cent, basophiles 1 per cent, transitionals 2 per cent; parasites none; pathological cells none.

Blood Chemistry:—Non-protein nitrogen 26.6 mg. per 100 cc. of blood; urea-nitrogen 12 mg. per 100 cc. of blood.

Wasserman Blood:—Positive, 4 plus.

Vaginal and Urethral Smears:—Negative for gonococcus.

Sputum:—Several examinations made.—all negative for tubercle bacilli.

SPECIAL EXAMINATIONS

Thorax (Physical):—Evidence of infiltration at suprascapular region, right lung, demonstrated by a slight dullness and increased vocal fremitus.

Abdomen (Physical):—Musculature firm; adipose tissue moderate; findings entirely negative, except left kidney is palpable and very tender to pressure.

Pelvis:—Normal, except there is a slight retroflexion of the uterus, first degree.

Cystoscopic Examination (Novocain anesthesia):—No residual urine found; there was great irritability of the bladder; the bladder capacity could not be accurately estimated, but four ounces of sterile water injected would promptly produce bladder spasm; the bladder as a whole showed a general cystitis, with shallow ulcerations in many places; however, these appeared to be erosions and all seemed superficial; no submerged tubercles found; vesicle orifice was of a deep reddish color with bullous oedema present; the trigone was practically obscured in the general cystitis; the right ureter was in normal position, but located with difficulty and then only detected from the spurt of urine expelled; this ureter was catheterized to the kidney pelvis, meeting no obstruction; left ureteral orifice was in normal position and appeared as a golf hole, with marked retraction and injection of the mucosa; considerable bullous oedema surrounded the orifice; ureter catheterized to kidney pelvis, meeting no obstruction.

Urines collected from both kidneys; the right remained clear, the left was cloudy and loaded with pus; right kidney capacity 5 cc; left kidney injected with 25 cc. of sterile water, producing no pain or discomfort—did not attempt a larger injection. Function Test—Injected 1 cc of phenolsulphonephthalein intravenously; time of appearance right kidney 2 1-2 minutes; time of appearance left kidney 5 minutes.

Fifteen minutes estimation of dye, right kidney 22 1-2 per cent; fifteen minutes estimation of dye, left kidney, 2 1-2 per cent.

Urinalysis, left kidney—albumin serum 3 plus, sugar none, pus 4 plus, erythrocytes a few; 48 hour culture shows streptococcus; many tubercle bacilli found in specimen. Urinalysis, right kidney—serum albumin trace, sugar none, leucocytes occasional, erythrocytes none; culture 48 hour, colon bacilli present; no tubercle bacilli found.

Conclusions — Phylonephrosis, tubercular, left kidney; right kidney apparently not affected—colon bacilli present on 48 hour culture but evidently inactive.

Recommendations — Nephrectomy, left kidney.

The patient was returned to Dr. O. H. Kellsall, who operated December 6th—Nephrectomy, left lumbar incision; kidney removed in the usual manner and found the greater

portion destroyed, leaving cavities of various sizes, lined with an organized wall and containing broken down glandular material; central portion largely replaced with fibrous tissue.

The patient has not been under my observation since the operation, but Dr. Kelsall tells me that the progress of the case has been excellent and that now there are practically no bladder symptoms at all; the nocturia is entirely eliminated and day frequency from four to five times, with no dysuria or bladder spasms. She has gained in weight and is able to resume her household duties.

DISCUSSION.

O. H. Kelsall, Louisville: I have little to say about the case reported, except to compliment Dr. Smith upon the excellent manner in which his preliminary investigations were conducted. After he finished his laboratory and other work on the case I knew just what was necessary in an operative way and what might be expected concerning the patient's recovery.

The function of the right kidney was practically normal, that of the left markedly impaired as Dr. Smith has stated. The left kidney was palpable and showed evidence of considerable enlargement. Nephrectomy was performed without especial difficulty under gas-oxygen and local anesthesia. Recovery of the patient was prompt and complete.

Edward R. Palmer, Louisville: I had the opportunity of seeing this specimen (left kidney) when it was fresh. Its appearance was then quite different from what can be seen now. The kidney was completely destroyed there remaining only the shell of the organ.

There are several points of interest in this case: One of particular importance is, how could renal tuberculosis persist for such a great length of time without giving rise to more subjective symptoms? There are possibly two ways in which that may be explained: First the possible bearing syphilis might have in the case. We know that one of the earliest symptoms of spinal syphilis,—even frequently before there is a positive Romberg, Babinski or Argyll-Robertson sign,—is its effect on the urinary bladder where there is disturbance of the reflex area. That might possibly have some bearing or explain why it was so long before symptoms pointing to the bladder were noted. The other possibility, which seems to me to be the most likely is: Taking into consideration the appearance of the kidney after removal, the disease must have existed for a considerable length of time, and it strikes me as possible that in the beginning the lesion was not tuberculosis but an ordinary pyonephrosis which is often free from any sub-

jective symptoms. Dr. Smith's report shows his examination of the bladder disclosed no evidence of tubercular infection, and there were no symptoms pointing to the bladder until shortly before nephrectomy was performed. If the patient had renal tuberculosis extending over many months or years, it seems to me it would be impossible for the infective material to pass downward without infecting the trigone and giving characteristic symptoms of vesical tuberculosis which were absent in this case. I am impressed with the fact that in this case there was an ordinary pyonephrosis, probably caused by a renal calculus, and the kidney became secondarily infected by the tubercle bacillus.

The case history is extremely interesting and has been well presented by Dr. Smith.

L. Lyne Smith (In closing): I thoroughly agree with Dr. Palmer with reference to the cause of the delayed vesical symptoms in the case reported. The most important feature was that this woman never complained of any symptoms referred to the bladder until a few days after she "strained herself" in moving some heavy furniture. Culture from the left kidney urine showed streptococci infection.

Eliminating the possibility of syphilitic dys-erasia causing partial anesthesia of the parts, it might have been that that this was in the beginning an ordinary case of pyonephrosis caused by the presence of a calculus which the patient had voided unnoticed, and that the tubercular infection was secondary. Whether it was ascending or descending no one can say. The vesical infection was probably streptococci in character. This is indicated by the intensity and sudden development of the symptoms.

I am very much indebted to the laboratory of the State Board of Health, Miss Janes being the technician, for laboratory findings in this case.

Condition of Gastric Lymph Glands and Ulcer.—Schneider has found a swollen and inflamed condition of the superior and inferior gastric lymph glands an almost infallible sign of gastric ulcer. In five cases in which general indications over a period of years and, in most of the cases, gastric bleeding, pointed to ulcer and on operation no ulcer was found, Schneider has taken the inflamed condition of the gastric lymph glands as evidence of ulcer, and has resorted to resection. In every instance, he found several small ulcers, in addition to the expected gastritis. The inflamed glands are the expression of the accompanying gastritis, irrespective of whether the gastritis or the ulcer was primary. If, in connection with laparotomy for other purposes, the stomach is inspected, enlarged lymphatics will not be found, or, at the most, two or three along the greater curvature.

GYNECOLOGY: ITS RELATION TO MEDICINE AND SURGERY.*

By EARL J. EVERSOLE, Louisville.

Gynecology was the earliest surgical specialty, due to the fact that the operative field is superficial, the parts present great resistance, and are easily drained. However, there developed an imaginary line, more or less arbitrarily placed, differentiating the abdominal from the gynecological surgeon. This proved to be a false boundary, since none hesitated to invade the field of the other. This may indicate the passing of the gynecologist and is in keeping with prevailing facts. There is no actual separation between that area above and below the ileocecal line.

Gynecology always has and always will bear a direct relation to medicine and surgery. To draw a separate and distinct line between medical and surgical gynecology presents a problem that my slow-thinking brain is incapable of solving.

As a woman plays a different part in life, physiological and social, we naturally expect to find her afflicted with a certain number of diseases peculiar to her sex, dependent upon her anatomy, physiology and mode of life. Women are peculiar, not only as regards their disposition and anatomy, but because of pathological conditions suffered due to the difference in their anatomic makeup. Thus we know that peritonitis is often a severe complication of such inflammatory conditions as appendicitis, salpingitis, oophoritis and endometritis.

Gynecology may be defined as that branch of medical science which treats of diseases peculiar to the female sex, both medical and surgical. During the past decade, and especially in the present one, the abdominal surgeon has invaded the field of gynecology, and the gynecologist has likewise invaded the field of the general surgeon. These two factors have caused the one time strictly medical gynecologist to be practically eliminated.

No physician can be a walking encyclopedia of medicine or surgery, but there are certain points which must be borne in mind when diagnosing or treating gynecological cases, whether they are to be treated by the gynecologist, the surgeon, or the general practitioner.

(1) A reliable anamnesis and physical examination of the patient.

(2) A knowledge of the anatomy and physiology of the parts.

(3) A knowledge of the diseases to which the parts are liable.

It is especially important to understand the first two, because, without a reliable history of the patient, it is impossible to properly interpret the symptoms and to distinguish the minor from the major ones; that is, the ones to discard, and the ones to which especial attention should be devoted. And, again, without a knowledge of the structure of the parts involved, and their functions under absolutely normal conditions, it is impossible to understand when their functions are rendered abnormal by disease.

As before stated, it is almost impossible to say whether in a given case the pathology belongs to surgery alone, or to medicine alone, for oftentimes it is only through co-operation of both surgeon and internist that the pathology is successfully combatted.

Not every case of oophoritis, salpingitis, and endometritis requires surgical intervention, although it is extremely doubtful if ovaries, oviducts and endometrium, the site of inflammatory lesions, ever function properly afterward unless dealt with by the surgeon. This is a class of cases where the original focus of infection is primarily within the pelvis.

One of the most frequent causes of pelvic inflammation is gonorrhea, second infection following labor or miscarriage, third infection caused by imperfectly sterilized instruments. The latter is encountered more frequently than we have heretofore thought.

Again, we see patients complaining of menstrual disturbances, metrorrhagia, dysmenorrhea, amenorrhea, gastric disorders, anemia; and so-called neurotic individuals who do not respond to any sort of treatment. In desperation we are about to recommend surgery, but finally the cause of the trouble is found to be a focus of infection, an abscess at the root of a tooth, or pus sacs in the tonsils. Many times the tonsils when removed seem to be normal, but incision through them reveals pus sacs in the center.

Girls who have menstruated once, then miss one, two or four months, suffer from backache, pain, etc., they are pale and anemic, with neurotic tendencies. These disturbances usually yield to treatment by rest, dietary regulation, tonics and some form of endocrine therapy. The chief of these, in the writer's opinion, is ovarian residue. Needless to say, this class of cases does not belong to the gynecologist or surgeon, but to the internist.

Another class of cases we see in women from thirty-five to forty-five, who have borne several children, who suffer from gastric dis-

*Read before the Jefferson County Medical Society.

turbanecs, constipation, flabby abdomen, palpitation of the heart, fainting spells, precordial pain and neurasthenic manifestations with no demonstrable pathology. These must be classed under the broad category of nervous women. This class is usually seen by the neurologist. Cases of carcinoma and fibroid uterus belong to the surgeon.

With regard to neurasthenia and hysteria: There is no doubt that such cases exist. However, it is my opinion that some obscure pathology is reflexly responsible for these conditions. A focus of infection may be found in any portion of the body, but is more than likely in the teeth, tonsils, appendix, or the pelvic cavity.

Finally, the gynecologist knows he has to deal with the results of errors and neglect during the developmental and parturient periods and with infections. Therefore, he should ask internists, family physicians and pediatricians to make intensive efforts toward the control and safeguarding of the growing girl. For instance, in the case of infantile uterus, with its train of subsequent evils, there has been some neglect in girlhood; and this neglect permits its appearance in an overworked school teacher, artisan, student, or barren wife. The evils in our social and educational systems, which intensively cultivate the mind while destroying the body, should be eliminated.

The writer is of the opinion that gynecology bears a direct relation to medicine and surgery.

For some of the data incorporated in the foregoing paper the writer is indebted to *The American Journal of Obstetrics and Gynecology*.

DISCUSSION

Harry Davidson, Louisville: I have been very much interested in gynecology for many years. The surgeons of twenty-five or thirty years ago were nearly all gynecologists, because early abdominal surgery was developed through gynecology. First, there were operations on the vagina and uterus, then the ovaries, the pelvic organs, the Fallopian tubes, and later the appendix. Gradually the upper abdomen was invaded, the gall-bladder, stomach, duodenum, pancreas, kidneys and spleen.

The great surgeons of years ago were all gynecologists, but the tendency today is for general surgeons to perform gynecological operations; that is, few men now do only gynecological surgery, they perform abdominal as well as gynecological operations. The gynecologist is gradually disappearing as a specialist.

The essayist mentioned the relationship be-

tween medicines and gynecology and referred to various infective foci within the body. We sometimes overlook foci of infection in the cervix. I believe many married women have focal infections in the cervix. For example, a woman who has borne a child has bilateral cervical lacerations, she has an eroded cervical mucosa and infection of the cervical glands. These glands are deep-seated and infected, is difficult to eradicate. This may be a focus infection just the same as abscessed teeth, tonsils, etc. I believe medical men often overlook cervical foci of infection in their examination of women. They examine the teeth, tonsils and sinuses, and forget that an infected cervix may be a focus of infection.

The essayist also said gynecological surgery today was chiefly the result of poor obstetrics; that in large measure is true, and it is for this reason that in nearly all cities men who are practicing obstetrics are now also doing gynecological work. Obstetrics and gynecology go hand-in-hand. I believe anyone who specializes in obstetrics should also specialize in gynecology, because many gynecological operations become necessary following obstetric procedures.

It has been emphasized recently, and I have heard several papers on the subject before the American Medical Association and Southern Medical Association, that gynecology as a specialty is rapidly losing ground. One can hardly name any great specialist in large cities of the country who devote all their time to gynecology. The men who are now doing good work in gynecology are obstetric surgeons, and in many instances also general surgeons. No doubt in another twenty-five years there will be no specialists in gynecology.

John W. Price, Jr., Louisville: The essayist mentioned one group of cases to which I wish to direct particular attention; that is, patients with salpingitis who he said did not necessarily require operation. It has been my observation and experience that not every woman with salpingitis needs to be operated upon in order for her to be up and attending to her duties. I have known a number of patients with acute salpingitis who were kept in bed until their temperature had subsided to normal and remained so for two weeks; they were then allowed to be up and about and were apparently in perfect health. But I have also noticed that it is not uncommon for this class of patients to have a second attack which kept them bedridden for some time, and unless relieved by operative measures they continued in a state of partial invalidism for a long period thereafter. In fact, some of them I have observed have been semi-invalids for four or five years because of pelvic adhesions secondary to infection, and then they

come to the surgeon and request relief. I have recently seen several cases of that type. We see many of them in the wards of the Louisville city hospital, women who are admitted with temperature of 102 degrees to 103 degrees F., and even after a prolonged period of rest we advise operation because we realize they have to work and make their living; and we feel they are in better condition to do so if we relieve them of their very distressing pain and other symptoms by operation. Often such patients will say, after a period of rest treatment, that they feel fine, that they have no pain, and want to go home. Under such circumstances we let them go home, but not a month passes that we do not have readmissions, patients who were in the hospital a year ago, or perhaps who were dismissed only three or four months previously without operation. When a patient returns the second time, particularly if she has to earn her own living, for instance as a clerk where she has to be constantly on her feet, a stenographer who must be at her desk every day, or even a society woman who insists upon being active with her social affairs, we advise such women strongly to have an operation and thus be freed of their troubles. I tell them if they do not consent to operation, they must realize they are going to be semi-invalids for varying lengths of time. I have no doubt it has been the experience of every surgeon present to operate upon such patients who had been invalids or semi-invalids for perhaps ten years before they consented to operation. A carefully taken history usually shows that the primary infection was due to either childbirth or gonorrhea.

As to the question of women being sterile after an attack of salpingitis: I have seen several patients who had profound septicemia and pelvic peritonitis following delivery where the infection subsided and they had the second, sometimes the third and fourth child, after recovery from puerperal infection. To some extent the same statement will apply to gonococcal infection, but I think it is less common for a Fallopian tube, after being infected by the gonococcus, to regain its patency and become sufficiently normal for the ovum to be fertilized within it. However, I recall one patient sent to the hospital by a senior student, a girl of eighteen, the daughter of the boarding house keeper where he boarded. She had married a young man (also a boarder in the house) whom this student had treated for gonorrhea about six weeks previously. This girl was admitted with the most virulent gonococcal infection I have ever seen; she had exquisite tenderness on both sides of the pelvis with temperature of 102 degrees F.,—in short, a typical attack of pelvic peritonitis associated with acute bilateral salpingitis. She was placed in bed and kept there for a month.

The temperature subsided, she rapidly improved, and was allowed to go home. The following year she was delivered of a normal baby in the city hospital.

Earl J. Eversole (In closing): I appreciate the very liberal discussion of my imperfect paper by Dr. Davidson and Dr. Price. I made the statement that not every patient with salpingitis required operation, but I doubt if the Fallopian tube ever regains its normal function after severe infection. Perhaps I should have said that the patient may recover, but may not remain well without a surgical operation,—it matters not whether infection be from gonorrhea, childbirth, or from some other cause.

I think many patients who come to us complaining of menstrual and other disturbances harbor foci of infection which could be located if we would take the time to make a thorough examination, physically, by the roentgen-ray, blood examinations, etc.

In regard to neurotic patients: I believe it was Cotton who stated that in thirty-five hundred patients with functional psychoses dismissed, eighty-five per cent of those completely cured were found to have foci of infection somewhere in the body,—in the appendix, teeth, tonsils, occasionally in the cervix. It is noteworthy that in many of them he said the trouble was reflex in origin, and especially in those with gastrointestinal disturbances the focus of infection was found in the rectum.

Transplanting Ovary into Uterus—Tuffier has performed this operation twenty-three times. The living ovary is included in the thickness of the uterine muscle, it projects partly into the uterine cavity, and is studded with corpora lutea. The ovarian tissue contains a voluminous cyst of ovular origin and a considerable number of myxocysts with Graafian follicles. The uterine mucosa, normal throughout, makes a little polypoid projection at the level of the ovarian "relief." On microscopic section the chorion is notably hypertrophic and the glandular convolutions of the the mucosa are greatly hypertrophied. One is in the presence the of a moderate adenomatous evolution, circumscribed, and of a still benign appearance. Tuffier says it is justifiable to transpose an ovary with its pedicle into the uterine cavity in order to preserve menstruation and the possibility of impregnation in women who have undergone double salpingectomy. Sterility due to lesions which are seemingly benign or unrecognized is so frequent that it opens up a possibility for the application of this operative measure. In twenty-three operations he has had no deaths.

INJURIES TO THE ASTRAGALUS.*

By CHARLES C. GARR, Lexington.

I have selected this subject for two reasons. The first being that I see a number of astragalus injuries, and the second is that such injuries have not gained the prominence of frequency in literature that they deserve.

The astragalus—the key-bone of the tarsus—transmitting the body weight to the ground is an oddly shaped bone with body, head and neck, snugly fitting between the two malleoli and articulating below with the os calcis by three facets and with the scaphoid in front and the tibia above. It is firmly held in this position by ligaments and tendons and owing to the structure of the joint is more firmly fixed in every direction except anteriorly where the tendon element is not so strong. The lateral and deltoid ligaments give it firm lateral support.

The injuries suffered by the astragalus are fracture, dislocation, or a combination of both.

In this connection I am not taking into consideration the condition of Pott's fracture, in which the astragalus plays an important part and which can cause a bad result in improper reduction.

The most frequent injury to the ankle is a sprain of the ligaments. Some of these cases are called sprain-fracture because the ligament in tearing away from the bone brings with it some spicules of bone and literally is a bone injury. Sprains are caused by the sole of the foot turning in, producing an undue tension on the lateral ligaments on the outside, two of which are attached to the astragalus. When the sole of the foot turns outward a Pott's fracture will usually result before the ligaments will give way.

The symptoms of swelling, discoloration and pain are familiar to us all, the external malleolus being in place and crepitus. I have found strapping with adhesive plaster after the plan of Gibney the most satisfactory—one broad strip two inches wide extending from the lower one-third of the fibula on one side across and under the ankle joint and up to an opposite point on inner or tibia side, supplemented with one inch strip around the ankle joint and not quite over-lapping in front. The patient is permitted to bear weight when pain will permit him.

Fracture of the astragalus more often results from a fall on to the feet from some height. Brooke (*Medicine & Surgery*, Vol. II, p. 530, quoted by B. F. Davis) calls at-

tention to the fact that the greater the height the lower the fracture, and I have found this to be true. In a fall from thirty or forty feet the os calcis will break or comminute. In lesser falls the astragalus will break or dislocate and in falls from relatively small heights the tibia or femur will break. Fracture may take place in the body, head or neck of the astragalus. The most frequent site is the neck, and the force may be such that dislocation and fracture will both occur.

In a fracture of the astragalus without dislocation an X-ray will be necessary to make an accurate diagnosis. If the case is a recent one, swelling will be pronounced and examination without anesthesia impossible. The treatment in fixation—preferably by plaster of paris with the foot at right angles to the leg. Bivalve the cast for its removal after the second week, for manipulation, baking and massage.

Dislocation of the astragalus results from a fall directly on the soles of the feet, a blow upon the heel, driving the foot forward, or from a fall to either side with the foot fixed or caught so as not to give way without force. A force must take place squeezing the astragalus as one would squeeze a watermelon seed between the thumb and index finger and it slips out with force.



Case 3. A. P. view showing dis location of head of astragalus and fracture of lower extremity of fibula. Borders retouched to show marked valgus deformity.

*Read before the Fayette County Medical Society.

The most frequent dislocation is that of the body of the astragalus forward; that is, slipping in front of the tibia and out of the malleoli. This is often associated with fracture of the neck, or of the os calcis or fibula. The foot is in a position of plantar flexion and the prominence of the body can readily be seen on the dorsum of the foot.

In my experience an anesthetic is required for reduction which is easily accomplished by traction, increasing the deformity and then manipulation back into position, followed by fixation for three or four weeks. Dislocation backward of the body of the astragalus is reported in the literature, but I have never seen it. In this case the body can be felt under the tendo-achilles and the foot is dorsiflexed. The reduction is said to be easily accomplished by manipulation under an anesthetic, though tenotomy of the tendo-achilles is sometimes necessary.

Rotary dislocation occurs not infrequently and I have had occasion to look up these reported cases. It is a condition not easily diagnosed by the X-ray. That is, the X-ray shows the deformity, but it is difficult to state just what the position is. In this condition the astragalus will turn over in its bed some part of the circle—usually 90°. This occurs in cases in which the foot and ankle are in a fixed position and the body weight is thrown to the side. The treatment of these cases is operative—reduction if possible by the open method, and if not, astragalectomy is indicated. In astragalectomy I use the curved incision from behind the external malleolus around to the dorsum of the foot. It is difficult to get a retro-displacement of the foot in adults. Operation is followed by fixation in plaster of paris, and after one month the patient is encouraged to walk in the plaster.

Complete dislocation of the astragalus occurs. This is usually a compound dislocation and accompanied by fracture. In this condition the astragalus can be felt under the skin and the treatment is excision.

An unusual dislocation of the astragalus is at the astragalo-scaphoid joint. Here the head can be felt and seen. The foot is in extreme valgus and results from direct injury. If seen early this can be easily reduced, but old cases are difficult to handle even when operation and wiring of the head to the scaphoid is resorted to.

I wish to report very briefly three cases having an unusual interest to me:

Case I. A boy of 19, while working on a traction engine caught his foot in some bars and cogs and fearing that his foot would be mashed by the cogs he threw himself to the ground, the force of his weight tearing his foot away from the engine. He had immediate pain, swelling, and loss of function. He was treated one month for sprain at which time he consulted me. He had slight swelling, pain to pressure over internal and external malleolus, great pain on inversion and eversion of foot. Foot was held in a slightly inverted position, could not bear weight.

X-ray showed an abnormal astragalus with callus about the head and neck. Astragalectomy was done, leaving the head which was in proper position. The body of the astragalus was found to be rotated 90° internally on its own axis and had a transverse fracture in the neck. Patient was walking in a cast in three and one-half weeks, and in three months was back at his usual work.

Case II. A white man aged 45, weight 250 pounds, fell to his feet from a scaffold eight feet high. Was brought to hospital in great pain and immediate swelling. Astragalus easily palpated on inner side of foot, in front of internal-malleolus—small one-eighth inch opening in skin over dislocated bone bleeding profusely.

Under general anesthesia astragalus was movable but not reducible. Incision through skin—frayed ligaments cut and astragalus removed.

Patient walking with cane four months after injury.

Case III. A lady 65 years of age while stepping to curbing fell to street on her right foot; could not arise. Brought to hospital in automobile. Marked deformity of foot, complete eversion, rounded prominence on dorsum in scaphoid region. X-ray showed head of astragalus dislocated, looking inward and downward.

Under general anesthesia dislocation reduced but only after firm counter pull was made by assistant and the deformity exaggerated; then it slipped back with distinct snap.

In conclusion I wish to add that I have not had a sufficient number of cases to have a set idea of my own. I think if the case is seen and diagnosed at the time of injury that open reduction can be accomplished in many cases with better results than astragalectomy, but in the old cases; that is, months and years old, I do not believe that reduction is possible, and that astragalectomy gives a more useful and less painful foot.

PERFORATING GUNSHOT WOUND THROUGH THIGH INVOLVING FEMORAL ARTERY AND VEIN.*

By JOHN W. PRICE, JR., Louisville.

There is a long list of cases with injuries to the femoral artery and vein which have recovered following ligation above and below the injury, and it is to this list that I desire to add the present case.

Because the number of cases of injury to the femoral artery and vein reported since 1919 is not large and because all of them have not been treated alike, it would appear that the treatment has not been standardized. A routine treatment of these injuries can be established by considering the results obtained by long rows of surgeons using similar methods. It is for this reason that I believe isolated case reports are of the greatest value.

Case I: Mr. J. L. G., aged 22—white—occupation, salesman. History of present condition: A friend was going target shooting with a thirty-two calibre revolver and offered to show the patient his gun. In doing so, the gun fired. The bullet passed through a finger of the owner of the gun and then through the right thigh of the patient who was standing immediately in front of his friend.

The accident occurred at 1:30 p.m., May 3rd., 1924, and the patient bled so profusely that he was rushed to the City Hospital. A compression bandage was applied to the leg and it controlled the hemorrhage and he was treated expectantly at the City Hospital until May 6th. The case came under my care at the Norton Infirmary at 3 p.m., May 6th., 1924.

Physical Examination: The patient is a young man six feet in height and weighs about 175 lbs. Temperature 99.4° F., pulse 92, respirations 18.

The examination shows no other physical defect than the gunshot wound in the right thigh. The wound of entrance is over the femoral vessels just above the apex of Scarpa's triangle and the wound of exit is on the posterior-inner lateral side of the thigh about three inches below. The thigh is swollen throughout and there is a mass the size of a grapefruit in the region of the wound of entrance. This mass pulsates, a thrill is felt and a bruit is heard.

The leg below the knee is swollen and edematous. It pits readily on pressure. The superficial veins are not enlarged. The leg

is warm but the foot is cold. There is a capillary pulse beneath the toe nails, and the posterior tibial artery is palpable though faint.

The wounds appear clean with a blood clot presenting in the wound of entrance.

Blood examination: Hg. 75.7, erythrocytes 3,550,000, leucocytes 12,000, polys. 70.7, lymph. 25 per cent, endo, 5 per cent. Urine—negative.

Abstract of daily notes:

May 9. Posterior tibial pulse is very faint. Swelling and edema of leg below the knee is greater. Capillary pulse beneath nails is faint. Foot not so warm.

May 9 to 14. No change.

May 15. Swelling and edema of leg below knee is less. Skin over first toe at tip is dehydrated.

May 16. Less swelling above and below knee. Posterior tibial pulse more pronounced.

May 17. Circulation of foot seems better. Return of capillary flush after pressure on toe nails is more prompt.

May 21. Marked thrill over mass below wound of entrance. Complaints of pain at site of pulsations, for first time. Posterior tibial is fair.

May 26. Wound of exit is healed. Granulations in wound of entrance were touched with stick of silver nitrate.

June 5. Wound of entrance is healed. Posterior tibial pulse is good. Discharge. Patient is to return for suture of artery. (Note). From May 17 to discharge June 5, temperature 98° F.

July 7. Re-admitted—Blood examination—Hg. 85 per cent, leucocytes 10,400, erythrocytes 4,310,000. Urine O. K.

Operation—On July 8 a four-inch incision over the femoral vessels exposing the entrance to Hunter's canal was made, to the side of the wound of entrance.

Condition found—An extensive organized clot and also fresh blood clot and fresh blood were found surrounding the vessels. The vessels were freed. The vein was found to be entirely divided, the edges were ragged and upper and lower segments were separated about an inch and a half.

The artery was ruptured and edges were ragged for about an inch at the entrance to Hunter's canal. There was just a band like bit of the artery remaining at the site of the injury, connecting the upper and lower segments.

There seemed to be no thrombi directly within the lumen of the vessels.

Treatment: The proximal and distal ends of the femoral artery and vein were ligated

*Clinical report before the Jefferson County Medical Society.

with linen and also no 2 chromic cat gut (two ties to the ends of each vessel).

The tourniquet was loosened and the area inspected. There was free arterial oozing below the ligatures. The wound was made dry and closed without drainage. (Note—the posterior tibial pulse was absent or very faint before operation and there was no change after operation.) The capillary pulse under the toe nails was active after the operation. Immediate post-operative condition was good.

Post-Operative notes:

July 8. Operation.

July 9. Toes are pink. There is a faint posterior tibial pulse. No edema.

July 10. Posterior tibial pulse is stronger.

July 14. Redressed. Wound healed by first intention.

July 16. Old fibrous blood clot discharged from upper angle of wound. Temperature 98.2° F. Four per cent saline applied.

July 29. Wound healed at upper angle. Circulation seems to be good through foot. No swelling or edema of leg. Posterior tibial pulse is palpable but not so strong as normal. Discharged.

When the patient came under my care you will recall that the injury was seventy-four hours old. The most favorable time (first six hours) for suturing an injured blood vessel has passed. My plan of treatment was based upon the belief that I was dealing with a ruptured vein and probably a very small wound of the artery which might be sutured if there was no infection of the wound track.

Therefore I decided to wait two months for whatever bacteria might be in the wound track, to die out; in spite of the fact that no gross infection was present.

In case of a small wound of the femoral artery I would be justified in suturing it, as I have done considerable animal blood vessel suturing, but in case of an extensive injury as in the present case, I believe that double ligation of both artery and vein above and below the injury to be the procedure of choice—even though the patient had come under my care in the first few hours after injury.

In regard to a choice of a time for operating in these cases—whether we all do an immediate or a delayed operation—even when we feel sure beforehand that a ligation is to be done, the question arises, will the collateral circulation be more competent after a delay? Will not some blood go through the distal end of the ruptured artery where its open end is lying in a pool of blood within the leg and in this way help to tide over the tissues

while the collaterals are becoming hypertrophied or developed to care for the need of the tissues?

Clinical experience teaches that the delay is not necessary. Lee¹ reports eight (8) consecutive ligations of the femoral artery. La Roque^{2,3} reports two successful immediate ligations. One of the external iliac and the other of the femoral. Fisher⁴ reports a similar case to mine with successful delayed operation—ten weeks after injury.

I recall doing a number of ligations in evacuation Hospitals in France though those records are not at hand at present—and I am convinced that immediate operation is the procedure of choice.

An immediate debridement lessens the danger from infection and its value must not be overlooked.

In case of injury to the artery alone we are advised to ligate the vein also.⁵

REFERENCES.

1. Lee—*Progressive Medicine*, 1919.
2. La Roque—*Annals of Surgery*, March 1921, P. 265.
3. La Roque—*Annals of Surgery*, June 1922, P. 705.
4. Fisher—*Annals of Surgery*, July 1923, P. 84.
5. *Abstract of War Surgery*—Surgeon General's Office, Washington, D. C., C. V. Mosby Co., 1918.

Treatment of Acute Osteomyelitis.—It is a rule in Fraser's practice that as soon as a case of osteomyelitis of the ordinary staphylococcal type comes under observation vaccine treatment is begun. Until an autogenous vaccine is available, which will be four or five days, a stock staphylococcal vaccine is used. An initial dose of 200 million is given, on the third day a dose of 400 million is used, and this is repeated on the fifth day; thereafter the autogenous vaccine is given every fourth or fifth day. As far as possible an attempt is made to arrange that the vaccine is given at the lowest points of the pulse and temperature curves. In the especially acute septicemic type of osteomyelitis and in the case which has not responded to vaccine treatment Fraser recommends serum therapy. After a preliminary sensitization test he administers large doses of either a stock serum, a specially immunized serum, or, if neither of these is available, the ordinary horse serum. The drug is given daily in increasing doses, beginning with 10 c.c. and reaching 100 c.c. The conditions which call for serum he considers equally suitable for blood transfusion, especially in young children. The value of blood transfusion in this connection is enhanced if it is modified by the combination of exsanguination with the transfusion. The most striking demonstration of the value of the method is seen in cases of osteomyelitic septicemia which persist in spite of the ordinary lines of treatment.

MALIGNANCY OF THE THROAT.*

By FRANK PIRKEY, Louisville.

The patient before you is a male, aged forty-eight years, who consulted me for the first time two days ago. I had him come here so that any of you who care to do so may examine his throat and give any suggestions you care to offer as to diagnosis and treatment.

The history in brief is that he first noticed some trouble with his throat a year and a half ago. During the first six months he said he "caught cold" easily and became hoarse and talked with difficulty for a few days. For the last year he has had a swelling on the left side of his neck, and during this time he has noticed a feeling of fulness in his throat and for the last two days he has been unable to swallow and has also had some difficulty in breathing.

In the left side of his throat there seems to be a growth which extends along the tonsil and posterior pillar toward the larynx. The edema, which he now has, is of two days duration. My opinion is that this man has a malignant lesion of the throat, but in this of course I may be mistaken. The Wassermann tests is negative. No other laboratory work has been done because the patient has been here only two days and we have not yet had the time. He has lost no weight during the last two years; but he has always led an active out-door life, being a farmer by occupation.

DISCUSSION.

L. L. Solomon, Louisville: My first suggestion is that this man has a syphilitic lesion. We know that syphilitic manifestations are common in the throat. We also have in mind the possibility of malignancy or some infection the result of involvement of the tonsil, the present lesion being secondary to it. The glandular enlargement has its bearing and suggestiveness.

Quite recently a case of this character came under my observation in which the presumption was that the patient was suffering from malignancy. She was the mother of one child and there had been one abortion. Upon investigating the history thoroughly we discovered that she had been led astray when a mere child—thirteen years old—had conceived and given birth to a child, from her description of which we presumed it was then she acquired syphilis. She had a positive Wassermann reaction of three-pluses. With a few doses of arsphenamin the lesion, which did not involve the throat so much

as it did the hard palate, disappeared and she was restored to complete health.

My impression is that the man before us has a gummatous lesion of the throat.

Octavus Dulaney, Louisville: I agree with Dr. Pirkey that this man has no gummatous lesion in his throat. The enlargement is just above the larynx involving especially the posterior pillar of the pharynx. The tonsil does not seem to be involved but is somewhat enlarged and edematous. The glands of the neck over the affected region are very hard.

I have seen two cases of this kind during the last year and a half, one of sarcoma, the other carcinoma. In the case before us I would make the positive diagnosis of malignancy. I believe it is cancer because there is no general adenitis. Careful examination discloses no enlarged glands such as usually found in cases of syphilis. From the past history probably the man had tonsillitis, his tonsils are now enlarged, and he naturally connects that fact with his present trouble.

Dr. Pirkey saw him first two days ago; the lesion has progressed considerably since that time. Upon looking into the throat little can be seen unless the tongue is completely depressed; when this is done the enlargement is plainly visible.

As to treatment: I believe radium would be the proper thing in this case. When malignancy has progressed as far as this has, I think the life of the patient is a matter of only a few weeks.

J. Garland Sherrill, Louisville: It seems to me there is no doubt about the correctness of the diagnosis of malignancy in the case before us. Syphilis of the tonsil or throat never lasts a year without eruption, general adenitis, and other symptoms of the disease. Valuable time has already been lost in this case trying to make a differential diagnosis between syphilis and cancer. Examination shows that the malignancy involves the anterior and posterior pillars of the pharynx and probably extends to the larynx. It is an extremely grave case, and the question is what are we going to do with it. If the growth can be removed with the knife and the base thoroughly cauterized followed by radium or roentgen-ray treatment, I believe there is a chance to save the man's life.

If the man before us is not subjected to radical removal of the growth, he is going to die and during his remaining days will suffer the most intense agony. He should be operated upon by the radical open method. After the surgical work is completed radium or perhaps deep roentgen-ray therapy should be applied. The most horrible deaths in the world are those from cancer of the throat and tongue. I believe radium or the roentgen-ray, without surgery, would be unavailing in this case.

*Clinical report with exhibition of patient before the Jefferson County Medical Society.

J. Paul Keith, Louisville: There is a possibility that the patient before us may have both syphilis and cancer. We know that these two diseases not infrequently co-exist. I have seen one or two such cases. In one the Wassermann reaction test was positive, but the pathological examination showed cancer.

Even if this man has syphilis co-existing with malignancy, I think he should be treated with radium and the deep roentgen-ray method. I would certainly advise that no surgery be attempted.

MEDICAL TECHNIQUE.*

By J. ROWAN MORRISON, Louisville.

Our secretary, Dr. Skinner, has asked us to prepare a paper, not too scientific, and more or less "on the spur of the moment," for this society, therefore, I have chosen the subject of Medical Technique with some remarks on the medicine man of then and now.

When I went to medical school, our lamented friend, Dr. J. G. Cecil, was professor of the theory and practice of medicine. The man occupying that position now in the medical colleges is called professor of medicine. Evidently all the theory has been done away with, and we are dealing entirely with medicine, and experimental medicine.

I believe that this subject should be considered under the head of the science and art of medicine. It would appear to me that, in modern times, medical men have to a degree forgotten some of the art of the old practitioners. The medicine man in America has occupied an important position for many years, even before this country was inhabited by the present race of people. From an article in *ART AND ARCHAEOLOGY*, of August, 1924, by Dr. Leonard Freeman, it appears that this race of people—the Cliff Dwellers, and Ineas, of South America—had developed the "medicine man" to a high degree. They did many trephine operations and probably anesthetized the patient with a compound of cocoa leaves fortified with chicha, the native alcoholic drink. It must have required great fortitude on the part of the patient, and immense nerve on the part of the surgeon, to bring about one of these operations. Probably it was from one of these early medicine men that American surgeons acquired the nerve to perform so many difficult and risky operations, and to charge such big fees.

Dr. Freeman goes on to say, "Among the Pueblos, who probably are the descendants

of the Cliff dwellers, it was not much easier to become a doctor than it is now. It was often necessary to study for a year or two under several preceptors, whose varied and intricate methods must have been very bewildering, to say the least. And, even after graduation, although he was regarded with awe and veneration, the doctor's life was not altogether a happy one; for if he too frequently failed to cure he was apt to be expelled from the profession, or even killed by angry relatives of the deceased. He was obliged to respond to every call, day or night, unless he could catch the messenger and kick him!"

What a solace it must have been to the tired medicine man to place a resounding kick in the gluteal region of the pesky messenger disturbing his rest, instead of registering a kick about being tired to death at the other end of a telephone line!

Dr. Freeman continues: "However, in compensation for some of his trials, if his powers began to wane, he could renew them by rubbing his back against certain 'post-graduate stones,' one of which is still in existence. Although his compensation usually was prompt and ample, much charity work had to be done, as has always been true in the medical profession of all times."

From what one gleams from reading medical history the early American physicians were truly skilled in all the arts of medicine and many allied arts. Men like Benjamin Rush, and the best physicians of his time, must have been consummate technicians in all that pertained to the healing art. So undoubtedly was that coterie of physicians that founded Transylvania University at Lexington, Kentucky.

The surgeons and laboratory diagnosticians have a finely differentiated technique to which they pay the minutest attention. It seems that the average medical practitioner, especially in the management of patients in their homes, does not pay nearly so much attention to these minute details of technique. The surgeon instructs his students in the minutest details as to how to prepare his hands, to clothe himself, and how to prepare his instruments and dressings, before he undertakes his surgical procedures.

The average practitioner of medicine has forgotten many of the details for taking care of all of the manifold needs of a medical case—is to prone, I believe, to simply look at the patient's tongue, take his temperature, and write a prescription, forgetting many times to instruct just what is expected of his patient, as to how he is to make the bed comfortable, how to employ his time while he is in bed,

*Read before the Louisville Medico-Chirurgical Society.

how he is to be fed, and why, and to give suggestions that make the bed a place of rest and comfort, rather than a bugaboo to the patient.

It does not appear to me that we physicians with an ordinary case apply enough attention to the proper administration of diet, and the proper explanation as to how the patients employ their mind during their illness. I do not believe we understand enough about the application of bathing or the use of scientific massage, and in certain instances, applications of electricity and therapeutic measures of that type. Undoubtedly it is because of this neglect that so many people are inclined to take up with fads of the pseudo-medical sciences. The modern medical tendency is to consider that a proper diagnosis too often leads to the proper treatment of a case. In this I believe the patient frequently differs from the doctor. Not that too much attention is paid to diagnosis, because that is the only way for the proper treatment to be finally determined. However, in going about the country from one place to another on my vacations I have heard many people complain that they are tired of being sent from one physician to another simply for diagnosis, and not having enough attention paid to their treatment. Many of the old-time medical men were masters in the art of suggestion and scientific therapeutics, and in the application of massage and therapeutics, other than the use of medicine.

Concerning the "Pearl of Great Price that Was Lost in the Bureau Drawer." Not so long ago I was called to see a patient for some minor ailment. On inquiring into the patient's history I found out that I would require the knowledge to be gained by examination of the blood and urine. I told the patient that I would need this. Thereupon I was told that "they had had a complete diagnosis" about one year previously. I asked that I be allowed to see this. Whereupon the patient told me that she had never used this valuable information, and that she had put it away in the bureau drawer. I asked if she could find it, and after searching one-half hour or more it was produced. It was an excellent resume of her condition in which all of the finer diagnostic tests had been completed and recorded, and although the principal line of treatment was to be that of diet, the patient had not even read the diet list. When I asked why she had not used this valuable piece of information she informed me that she had gotten mad at one of the technicians, and that she did not understand how to use the blame thing anyway! This was certainly not the

diagnostician's fault, and still it appeared that this case might have been followed and some more definite information given as how to properly wear, to its greatest advantages, this wonderfully prepared pearl!

Another patient about two years ago came to me for examination. I found a very pronounced tuberculosis of the lungs. When I stated my opinion the patient was greatly surprised, saying that one of the best and foremost diagnosticians in the country, in my opinion, had made a complete examination, for which the patient had paid several hundred dollars, and that he had not been informed of this condition of the lung. In looking over this diagnosis I found that the condition at the former time was evidently that the patient was in a state of under-nutrition, with probably gastro-intestinal symptoms, and no evidence of lung involvement. The patient had been advised to rest and take a fattening diet; however, as he had been advised to do this in one institution, and as he did not consider it feasible to pay the required fee, he had disregarded all the information and kept on a strenuous work, so it was very easy for him to develop tuberculosis of the lung because he had not followed the primary instructions. The patient was undoubtedly to blame, but probably had it been explained to him that he could take rest and nutrition at some other place and possibly in a modified manner, I believe that he could have utilized many of the suggestions given in this advice. I feel quite sure that many times our patients are not benefited by our advice, not only because they are loathe to accept it, but because we do not explain to them in full just exactly what we mean.

Some really sick patients I have seen recovered where they continued to work. This phase was brought to my attention last spring, when I heard of one of the foremost industrial physicians of this country remark that he believed in the near future the worker in industrial plants would probably not be discharged on account of his sickness, but he would be surrounded by care and instructions to such a degree that his condition could be remedied while he still held his job. In thinking of this matter there came to my mind the case of Mr. G., a patient 45 years of age, referred to me by Dr. G. S. Hanes, in 1914. This man had a well developed case of tuberculosis, which would ordinarily require sanitarium treatment. When I told him he would have to stop work and if possible go to an institution for treatment, or at least stay at home and put himself under the care of the anti-tuberculosis association,

he remarked that he could not do either one of these things, that it would be impossible for him to comply with my request, and that I would have to give him some medicine and let him continue to work. This I refused to do, but after investigation of his condition I told him that if he would comply with me in absolute detail I would try to do the best I could with him while he retained his position. I found that he was working in the Government Depot in Jeffersonville, that he had a position where he worked sitting down, and that he was situated near an open window, and that he was not in an occupation where he would have to inhale a great deal of dust. I then asked him how much whiskey and tobacco and patent medicine he used, and found that the man was spending considerable money for these things. I then found how far he had to walk in going home from his work. I advised him to spend some more money on street car fare, which reduced his actual exercise to a very small amount. He was instructed to rest all available time when he was not in active work, to get up late in the morning, and retire immediately after going home from work. The money he saved from his whiskey, tobacco, and patent medicine was sufficient to buy quite a lot of food, and as his salary was sufficient for him to have other good foods anyway, he made out a very excellent tubercular diet. I had this man come to see me every two weeks for several visits, then let him make monthly visits. He followed my instructions perfectly and soon began to improve and to do his work satisfactorily enough that in a year he was given two raises in salary. I followed this man for some time and about two years after I first saw him his condition had so improved that he was getting about as a healed tubercular subject.

The case of M. came to me a year ago last September. He was a man, 28 years of age, working as a clerk in a store. His chief complaint was pain and burning in the epigastrium. He was extremely weak, and suffered from violent headaches, so much so that he was practically unable to carry on his work successfully any longer. I had an analysis made of his stomach contents, which was very highly acid, and contained blood, and his blood showed only about two million and a half red cells, and a secondary anemia from hemorrhage of the stomach. He was not in a position where he could go to the city hospital, as the man's salary was such that he did not come within their jurisdiction. He did not have enough money to go to a private institution, and his employer told me that he could only give him a week's vacation, and

hold him on his job, so under the circumstances I advised him to rest for the week, and put him on a Sippy ulcer treatment and also had him give himself some hypodermic injections of Fraissees ferruginous ampules. At the end of one week he was strong enough to do his work, although he was far from well, so I had him continue the ulcer treatment while he carried on his occupation. His employer co-operated with me in allowing him to do this. This young man improved rapidly, and at the end of six weeks was practically free from symptoms and had regained almost the normal amount of blood, and under a modified ulcer treatment continued to work and improved, and when I saw him last, in the past summer, he was not having any further trouble.

I am simply reporting these cases, and I have seen many others, very similar, to show that in this type of case we can often accomplish much by detailed instructions and management, that could not possibly have been accomplished had we not have paid the minutest attention to every form of technique.

Brains versus Buttocks: I am inclined to think that we, as general medical men, often believe that we must ride a considerable distance and wear out our buttocks, and utilize a lot of time, whereas, we might have the patient report to us, and by a careful intelligent examination find out as much or more, without any detriment to the patient, and thereby save a lot of our valuable time.

DISCUSSION.

Cuthbert Thompson, Louisville: Medical technique is one of the most important features of medical practice today. Physicians are often careless in their instructions to patients, even concerning the simplest matters of diet, rest, etc.

I believe a great many of the faddists, pseudo-scientific cults, etc., have come into being through our own fault. As Dr. Morrison said in his paper we often overlook some simple therapeutic measures, for example the use of electricity, massage, baths, dietetics, etc. We should take more time to examine and study our patients, and then instruct them in these important items. Moreover, these features should be taught in medical schools to a greater extent than they are today.

J. Garland Sherrill, Louisville: For once Dr. Morrison and myself agree. Undoubtedly the medical profession is very lax in the management and education of patients. We do not sell our ability for its full value. We do not give the patient the attention that he really requires. The patient wants proper consideration as an individual, he knows that he requires certain

treatment, and if we do not give it to him he will apply to somebody else who will.

To be a successful physician a man must give mature study to all the little things in medicine. This was emphasized by Dr. Morrison in his paper. Wonderful tact is required in the practice of medicine, and this is often neglected. Another thing is that we should all profit by our mistakes, and the doctor makes them the same as everybody else. If we make an error once we are unlikely to make the same mistake again.

C. Skinner, Louisville: Like Dr. Thompson, I believe the reason for prosperity of the various pseudo-scientific cults is entirely the fault of the physicians; we do not handle our business properly, or as Dr. Morrison has said, we devote too little attention to the art of medical practice. We are neglecting many of the important little things in medicine today.

I do not know what will happen when the old school of doctors passes away; it is a serious proposition to contemplate. Every fresh graduate wants to be a surgeon, or conduct a roentgen-ray or radium establishment, or use electrical apparatus about which so little is known. Nowadays we have too much laboratory medicine and not enough practical bedside medicine, and in consequence the art of medical practice is being lost. I do not mean to discredit the laboratory, it is often a most valuable aid in diagnosis, but the busy man in general practice cannot wait two weeks to ascertain what is the matter with his patient. We should pay more attention to the individual and we will have less need for extensive laboratory methods.

John J. Moren, Louisville: I am sorry that I missed the greatest part of Dr. Morrison's paper. To my opinion one of the most important factors of the supposed lack of confidence which is displayed by the laity in the medical profession is that medicine has been robbed of its mystery. Everybody knows something about medicine today. We have got to make greater effort to satisfy our patients. They do not just accept our word as law.

As to the value of electricity, I am satisfied that it has its virtues. I have confidence in it as a therapeutic agent in many conditions. It is remarkable the number of people who apply for electrical treatments for all varieties of disease. It has been my practice to use it only in those cases where it seems to have done good.

John Walker Moore, Louisville: I think Dr. Morrison has hit the head as well as the tail of medical technique. Everything he has said in his paper is true, and especially the story about the pearl in the bureau drawer! Many of the patients referred to me for thorough examination come armed with these voluminous laboratory

histories, and in the majority of them the findings check with the results of my investigations. It is questionable whether these voluminous histories should be given to the patients without a full explanation. In the Mayo Clinic these histories are never given the patient, they are kept for the clinic records. If the physician wants the data the patient is told to have him ask for the records and they will be furnished.

Like Dr. Morrison and Dr. Thompson, I believe we should take more time and examine our patients thoroughly, instructing them in dietary regulation where required, the importance of rest, recreation, etc. As Dr. Morrison so well said, we are all too prone to neglect the little things which make the science and art of medicine worth while.

Charles G. Lucas, Louisville: One reason for all this change is the fact that times have markedly changed so far as the practice of medicine is concerned. If many of the older practitioners could return today they would have a hard time in the practice of medicine, so much have methods changed. In the olden days not more than twenty-five per cent of patients came from a distance, laboratory investigations were not necessary, and the doctor secured the most of his information from reading magazine articles. Today ninety per cent of our patients are from out of the city and the majority of them insist upon laboratory examinations.

I am impressed with the fact that oftentimes we do not thoroughly examine our patients. I have patients coming in daily who want to be examined for "stomach trouble." The majority of them want me to give them medicine for the relief of gastric or duodenal ulcer, and when operation is suggested it is surprising the number who will refuse. I have also been surprised at the number of patients who come to the city for treatment on Saturday afternoon and remain until Monday morning. I saw a man yesterday who first consulted me last April; he has an ulcer on the lesser curvature of the stomach and has refused operation. He manages to get along fairly well; he remains in bed from Saturday noon until Monday each week.

Ben Carlos Frazier, Louisville: I have been practicing medicine longer than Dr. Morrison and have encountered all the worries and vexations he has described. I think we can avoid many of the difficulties by not paying so much attention to exactly what is the matter with a man if we take proper care of him. I believe in treating the patient as much as the disease, and sometimes a whole lot more. The general practitioner must take care of the entire family, including the wife and daughter. He must talk

to the family and explain matters to them concerning their ailments. Of course, if a patient has cancer he should not be so informed. When I began the practice of medicine people thought it was a great shock to be told they had cardiac disease or tuberculosis, but nowadays the sooner they are informed the better so they can take proper care of themselves and many of them recover.

J. Rowan Morrison, (In closing): Probably I have been misunderstood about a few points. First I want to say that I am in favor of practicing modern medicine; it represents a great advance over old time methods. As I said in the paper, we ought to consider the difference between the science and art of medicine, and in some cases we should consider the art of the doctor, because every good physician has in him something of the artist.

So far as diagnosis is concerned: I said in the paper that the modern tendency is to consider that a proper diagnosis too often leads to proper treatment. In this I believe the patient sometimes differs from the doctor. Not enough attention is paid to diagnosis of disease. That is the only way for proper treatment to be finally determined. On the other hand, after the diagnosis is made, oftentimes it is not explained to the patient exactly what it means. That is the point I tried to make clear in the paper. I did not intend to convey the impression that laboratory men were insufficiently trained or over zealous. I always try to learn whatever I can from them.

Dr. Moren spoke of the use of electricity in treatment of various affections: In a city of this size it might be a good idea for doctors, surgeons and specialists to have an institute where people could be referred in the proper way, and where these things could be used in suitable cases: the use of baths, electrical applications, the use of heat, etc., in addition to dietary regulations and advice. The application of heat by electricity or otherwise is of value in a great many conditions. We are not utilizing these simple measures to the extent that we should.

Antagoism Between the Arteries.—Truncate points out that the different behavior of the superficial and the visceral arteries is due to an unequal distribution of muscular fibers in the arterial walls. Circular fibers predominate in the surface arteries, while longitudinal fibers predominate in the visceral. Consequently, stimulation of the vasomotor center by the metabolic waste products in the blood induces ischemia at the body surface. A simultaneous hyperemia occurs in the organs, especially in the kidneys, with elimination of the waste products, and restoration of the circulation balance.

QUINSY OF THE LINGUAL TONSIL: CASE REPORT.*

By WALTER DEAN, Louisville.

On March 31, 1921, I saw Mr. F. W. at the office suffering from acute follicular tonsillitis. The follicles were emptied by suction and the pus sent to the laboratory. The organisms demonstrated were principally the hemolytic streptococci. The patient was weak and was sent home to bed. He improved and in three days returned to work.

On the sixth day a terrific pain developed in the right side of his throat which was made worse on swallowing. His temperature was 103° F. The right side of the tongue was elevated slightly and the patient suffered severely when the tongue was depressed to examine the tonsils and still more when the tongue was drawn forward to examine the larynx.

The faucial tonsils were congested, but to my surprise there were no signs of quinsy. The laryngeal mirror revealed a red swelling at the site of the lingual tonsil. The epiglottis was edematous. The patient ate nothing, slept none, and "dribbled at the mouth." The next day the jaw did not open fully, the tongue was swollen higher, and swelling at base of the tongue was greater. The cervical glands were only slightly tender. The temperature remained 103° F.

It became evident that the cellulitis would progress to abscess formation, and the question to decide was when might pus be expected? Our dogmatic rule that pus is surely to be found on the fifth day of quinsy did not comfort the patient. He was very positive he would not live that long. On the third day the tongue almost filled the mouth, but the floor of the mouth was normal. The right cervical glands were tender and harder than the left, but the difference was slight. The epiglottis was greatly swollen and the right aryepiglottic folds infiltrated. There was no dyspnea. The temperature was 103.5° F. On the fourth day, after topical applications of cocaine, the abscess was incised and about half a teaspoonful of foul smelling pus evacuated. From that time on the patient promptly improved.

Two months later the tonsils were removed under local anesthesia and convalescence was uneventful.

I have seen two other somewhat similar cases of lingual abscess. They are very painful, but according to the literature they rare-

*Clinical report before the Jefferson County Medical Society.

ly cause septicemia unless the internal jugular vein is involved.

This condition is to be differentiated from the other group of abscesses of the tongue, Ludwig's angina, which is a more serious and rare condition.

DISCUSSION.

Chas. K. Beck, Louisville: There are three reasons for recurrence of faucial tonsils after removal: First in importance and frequency, a piece of tonsillar tissue is left during the operation and proliferation occurs. Second, overgrowth of the lingual tonsil as already mentioned. Sometimes tonsillectomy seems to stimulate growth of the lingual tonsil or adenoid tissue in the pharynx. Third after tonsillectomy the small lymph glands, situated in the posterior pillars, especially in children, sometimes overgrow and fill in the tonsillar fossae.

Because of disturbances which may later ensue I think it wise to remove the lingual tonsil during tonsillectomy, especially on account of the danger of abscess formation. If the lingual tonsil had any function it might be wise to leave it, but it is just as functionless as the faucial tonsils and should therefore be removed at the original operation. Moreover, the lingual tonsil may later become sufficiently enlarged to interfere with respiration, and it has been known to originate pharyngitis.

Chas. C. Maupin, Louisville: I have seen one case of abscess involving the lingual tonsil occurring in a man aged fifty-six. There was some enlargement of the cervical glands with drainage from that area. Lingual abscesses are rather difficult to handle, rupture usually occurs in the base of the tongue almost beyond visual inspection, a laryngeal mirror has to be used to see where they are pointing, and the tongue is so swollen and muscles of the mouth so contracted that it is difficult to obtain a satisfactory view. In the case just mentioned we adhered to the rule, the abscess was incised on the fifth day, the pus was evacuated, and prompt relief followed.

Walter Dean, (In closing): I agree with Dr. Beck about removing the lingual tonsils at tonsillectomy. Of late years the laryngologist has assumed a large part in the fight against focal infection. We must remove adenoids and faucial tonsils thoroughly and even snare off the lingual tonsils too if we are to escape deserved adverse criticism. Lingual tonsils are very vascular and bleed more in removal than do faucial tonsils. The incision of a lingual abscess is difficult on account of natural anatomic inaccessibility, on account of pathologic swelling and on account of

the vascularity of the tissue at the base of the tongue. A hemorrhage in this region is an embarrassing complication. If we will wait until abscess formation is completed and inspect the field of operation by the use of a laryngeal mirror, the danger is minimized.

ORGANS.*

By WILLIAM H. EDWARDS, Danville.

An organ is a musical instrument. It is also an instrument used in the operation of a system. A system is used in the production of articles or results; that being true, to organize a body or system means to furnish it with organs. Some systems require more organs than others. I do not mean by that human bodies, because all human bodies require the same number of organs.

Man is the best organized, most powerful, and most capable system known. The reason is the human system does more and greater things than any other system and for that purpose is so organized.

The mind is an organ. That being the case it is of real tangible substance and has a certain location.

An organ is not power or the power, but it is the container and instrument in which and through which power operates. All power is invisible but it must have something visible in which and thru which to operate the mind is the organ of sense or consciousness, without consciousness there is no sense.

You cannot hear, see, smell, taste, or feel a thing without first becoming conscious of its existence.

Man has two minds, or in other words, two sources of consciousness, the inner mind and the outer. The inner mind is located in the heart and the outer is located in the Liver. Now in order to get a good start it is necessary for us to know that all power is primarily electric. The brain is nothing more or less than an electric battery transmitting electricity which is life to all parts of the body. The electricity, however, is taken into the body by the lungs and by them delivered to the heart and the heart processes or generates it and transmits it to the brain to be distributed by the brain to all parts of the body.

*Read before the Boyle County Medical Society.

THE MECHANISM OF THE HEART'S ACTION.*

By B. S. RUTHERFORD, Bowling Green.

The heart has five functions:

First, the function of stimulus, or the power to produce stimulus.

Second, the function of excitability or the power to receive a stimulus.

Third, the function of conductivity, or the power to convey a stimulus through the muscular substance.

Fourth, the function of contractivity or the power to contract in response to a stimulus.

Fifth, the function of tonicity.

Until quite recently members of the medical profession were divided in their opinion as to the origin of the excitatory impulse that caused the heart to beat. Some claimed that it was of neurogenic, while others thought it was of myogenic origin.

Since the discovery of the bundle of His in 1893, it has been demonstrated in various ways, which I will not go into detail to explain, that the stimulus is beyond doubt of myogenic origin, which is now practically conceded by all.

In 1907, Keith and Flack described a small collection of pale, faintly striated muscular fibers situated in the wall of the right auricle, between the opening of the superior vena cava and the auricular appendix. This is now called the sino-auricular node.

In 1906 Tawara described a node of similar structure in the wall of the right auricle, between the fossa ovalis and the opening of coronary sinus, this is the auricular ventricular node. He also described in greater detail the bundle of His and traced its course from its origin near the auricular ventricular node of Tawara downward under cover of the septal cusp of the tricuspid valve, where it lies in a groove on the inferior border of the central fibrous mass; it then runs along the upper border of the interventricular septum; at this point it divides into the right and left branches, sending a branch on either side of the septum, which are finally distributed to the ventricular muscular through the subendocardial net work, known as Perkin's system.

The right branch always sends fibres to the moderator band, which are distributed to the anterior wall of the right ventricle.

The sino-auricular node, the auricular ventricular node, and the auricular ventricular bundle of His are remains of the embryonic primitive cardiac tube, and we find in these

the regulating function of stimulus production, excitability and conductivity, which constitutes the system of stimulus production and conduction.

We have in connection with this system of impulse production and conduction of stimulus, two opposing sets of nerves, the pneumogastric, which inhibits, and the sympathetic, which accelerates, with their combined action they exercise a coordinating influence on the heart's action in controlling its rate. While the stimulus to contraction originates in the Sino-auricular node, which in reality is the pace maker, the rate is established or suggested in the central nervous system, whereby the heart is informed of the needs of the body for blood, this it does by the co-ordinating action of the sympathetic and pneumogastric on the Sino-auricular node, the point at which the pace is established, Aurbacher plexus co-ordinate peristalsis.

In addition to the usual point of stimulus production, we have scattered through the musculature of the heart isolated foci of stimulus production whose function may be called into requisition in cases of emergency. For instance, in case of complete heart block, in this condition absolutely no stimulus would reach the bundle of His from the Sino-auricular node, and but for stimuli supplied by these isolated foci, the ventricles would be forever silenced. But fortunately for the individual, this is usually done and the heart continues to beat from stimuli supplied, which is purely ectopic. This gives a fair description of the stimulus production and conduction system.

We will now consider the course pursued by the stimulus from its point of production to its final destination in promoting the heart's action. Beginning at the sino-auricular node, we find that it is advantageously situated in order to transmit its stimulus through the auricular muscular fibres, which collect in a fan-like shape to a concentration point just below the node, where it receives its stimulus, which is conveyed through the muscular fibres of the auricles, causing them to contract.

The stimulus which causes the ventricles to contract also starts in the Sino-auricular node, passing down to the auricular ventricular node, thence through the bundle of His, through the right and left branches of this bundle, through the subendocardial net work of Perkin's where it is distributed to the muscular fibres of the ventricles.

The cardiac muscular fibres are functionally continuous, so that a contraction of one fiber involves a contraction of all. In other words, if cardiac muscles contract at all, it is

*Read before the Third District Medical Society.

in response to a stimulus, it does so with all of its force.

Engleman believes that the stimulus producing material is continually being formed, and that the molecular explosion which occurs at systole, destroys the stimulus producing material; not only at the point at which contraction originated, but throughout the whole heart. The molecular structure then has to be built up again to the necessary point at which contraction can again occur.

When we come to consider the complexity of the mechanism of the heart's action and the enormous amount of work it is called upon to do, we are not surprised that it takes its position at the head of the list from a standpoint of mortality with other diseases, and that a great deal of the trouble that leads to a fatal termination is due to faulty conduction and production of stimulus. Heart block, auricular flutter, auricular fibrillation and extra-systole are all due to faulty stimulus production and conduction which are frequently superinduced by degeneration of the myocardium.

Heart Block is a condition in which stimulus conduction from auricle to ventricle is delayed or absent. Slight grades of heart block are manifested by an occasional total failure of conduction giving rise to a drop beat in which ventricular silence occurs for twice the normal interval. These may later recur at more frequent and regular or irregular intervals.

The extreme degree of heart block is a condition where absolutely no stimulus is transmitted from auricle to ventricle and but for stimuli transmitted from ectopic sources or isolated foci, the ventricles would be forever stilled. With a pulse rate of fifty, we should always suspect heart block, when it drops as low as thirty-five we may be practically sure that this condition has occurred.

In partial heart block we would hesitate to give digitalis, because of its stimulating effect on the pneumogastric and its tendency to convert an incomplete into a complete block. However, if the patient was threatened with heart failure, we would be justified in taking the risk, as the only harm it could do would be to convert an incomplete in a complete block. In complete heart block with symptoms of heart failure, we would be justified in giving digitalis for, if the block should be complete, digitalis could not render it more complete. Belladonna ordinarily is the more rational treatment in these conditions, because of its depressing effect upon the pneumogastric, and its tendency to hasten transmission of stimulus.

Heart block is usually associated with degenerative changes of the myocardium, and while the immediate welfare of the patient may not be jeopardized, prognosis as to the ultimate outcome is unfavorable. Auricular flutter is a very rare condition, and has been very recently discovered. In this the stimulus is ectopic and is said to arise from a single isolated focus. It is claimed that it is almost impossible to diagnose this condition without the aid of the electrocardiograph.

One characteristic of the pulse in auricular flutter is its regularity in contradistinction to the extremely irregular pulse of auricular fibrillation. In an elderly person who presents a persistent and regular ventricular action of 120 or more auricular flutter should be suspected and its presence confirmed by electrocardiographic examination, a method but few of us have at hand.

In auricular fibrillation the stimuli for contraction arises, not in the normal pacemaker, but from multiple degenerative auricular foci. In this respect auricular fibrillation differs from auricular flutter in which only a single abnormal focus is at fault.

The ventricular rate varies, usually being from 90 to 180, the pulse being wholly, continuously and persistently irregular. In a succession of counts at the apex and at the wrist discrepancies will be found in practically every such count.

Simultaneous counting of the pulse at the apex shows a pulse deficit due to incomplete systole. Fibrillation of the auricles is most frequently associated with the symptoms of cardiac failure, such as dyspnea, venous engorgement, edema, and anasarea. A rate of pulse over 120 and absolutely irregular is almost conclusive evidence of auricular fibrillation. It is a condition that arises in more than 60 per cent of all cases of cardiovascular diseases in their terminal stages, with cardiac decompensation.

A presystolic murmur existing previous to the onset of fibrillation, usually disappears when fibrillation occurs, owing to the inactivity of the auricle maintained in a position of trembling diastole and failing to contract.

In auricular fibrillation it is not uncommon to find a radial pulse of 60 and a ventricular rate of 120 showing that many of the beats fail to reach the wrist.

Fibrillation is evidence of profound damage to the musculature of the heart. Fortunately, it is amenable to treatment, and while a serious symptom, it is not by any means to be considered immediately fatal.

In the treatment of auricular fibrillation, digitalis has proved to be wonderfully successful. If the degenerative process of the

cardiac muscles is not too far advanced, by giving it in 20 or 25 drop doses, from four to six hours apart, we may usually hope to obtain gratifying results.

It is to be remembered that atropine and belladonna are supposed to increase the conductivity of the bundle of His by its depressing effect on the vagus, a condition which we absolutely wish to avoid in fibrillation. It is for the purpose of decreasing the auricular impulses that we give digitalis. This it does by stimulating the vagus and removing inhibition.

Premature contraction or extrasystole are manifested by the intermittent pulse, the abnormal beat occurring in advance of the anticipated interval, and usually being followed by a pause of unusual length. Premature contractions are usually weak, while the succeeding and somewhat delayed beat is usually strong, because of prolonged ventricular rest, and a greater accumulation of blood. The stimulus that causes this abnormal beat is not derived from the normal pacemaker, but from an isolated focus. It is claimed that premature ventricular beats or extrasystoles are the commonest form of disturbance of rhythm.

When not accompanied by other signs of cardiac disturbance, premature contractions have no great significance and require no treatment, nor is it necessary to curtail the patients activities.

The Value of Insulin to the Surgeon.—Duttman emphasizes that every operation on a diabetic is dangerous, not only because of the anesthesia but also on account of the slow healing of the wound. It is his routine practice, before operating on any person, to assure himself first whether the patient presents symptoms of diabetes, or at least whether there is any elimination of sugar through the urine. Every surgeon should endeavor to rid diabetic patients before operation of sugar and acetone, in order that the organism may be better able to resist complications, and by means of insulin, the patient's urine can be rid of acetone bodies and, in some instances, made sugar-free, in a relatively short time. Also postoperative coma can be prevented in almost every instance. Duttman therefore concludes that insulin is a most valuable remedy for the surgeon, especially in combating outward complications following operative intervention.

THE CHALLENGE OF THE CHRONIC ABDOMINAL CONDITION TO THE SURGEON.*

By E. W. NORTHCUTT, Covington.

The title of this paper has been changed slightly from "The Challenge of the Chronic Abdominal Patient" to "The Challenge of the Chronic Abdominal Condition to the Surgeon." It is understood, of course, that this challenge refers to diagnosis. If there is a challenge anywhere in medicine, one that puts the doctor to a real test and one that often leaves the field victor, it is the diagnosis of the chronic lesions arising within the abdominal cavity.

In a paper such as this, it of course, would be impossible to go into detail in any of them or even mention all the various pathological conditions affecting the viscera of this region. It can hardly be said that any one internal part of the body possesses any special peculiarity that makes diagnosis of lesions affecting it more difficult than the diagnosis affecting another internal part. There are times when pathological conditions arise in any of them, the diagnosis of which is impossible. However, when we study the body by regions, one will soon see why abdominal disease may be more difficult to diagnosis than those of the thorax or skull. Let us consider for a moment what the abdomen contains and why the above is true. It contains practically the entire gastro-intestinal tract except the last four (4) inches of the rectum—and disease here often gives rise directly to abdominal symptoms. It contains the glands associated with the gastro-intestinal tract in digestion, the adrenals, the kidneys, the ureters and bladder, the beginning of the thoracic duct, the spleen, large blood vessels, the various mesentery and omenta with their blood supply, almost the entire female reproductive organs, the lumbar cord and nerves coming from it, termination of several nerves originating higher up in the cord, a large part of the sympathetic system, many lymphatics and, finally, the peritoneum intimately covering almost this entire array and completely lining the abdominal cavity. Little wonder then, it must be that the pitfalls of him, who would do abdominal surgery are so many. To go further and consider for a moment the extremely complicated physiological side of the viscera contained within this cavity of wonders, one is almost forced to ask, how we make any diagnosis at all—not how we sometimes miss. There is not an organ in

*Read before Campbell Kenton County Medical Society.

the abdominal cavity whose function is thoroughly and completely understood. Disease of one of these organs, we know is often seen through abnormal function in another; for example pancreatic disease is recognized by glycosuria. Disease of the head of the pancreas may by its obstruction to the flow of bile give almost a perfect picture of gall bladder disease. Just to what extent or how often disease of one organ may be reflected through abnormal function in another, we cannot say. If through all the years we have not learned the normal function of these organs, then who can say we understand them and can interpret their action in a pathological state. The kidneys are more nearly understood than any other organ and pathology here can be more nearly worked out to an exact end than in any other organ. Granting that we are familiar with the location, relation, size and etc., of the various abdominal organs, we still can not always say a tumor mass or a point of tenderness is or is not a given organ because of its location, because so often the abdominal viscera wander far from their normal habitat. The stomach may be found far below the umbilicus, the transverse colon may be found lying in the true pelvis. The kidneys are not always found lying peacefully upon the last thoracic and first two lumbar vertebræ by any means. The right kidney especially is often found far from this location. There may be a congenital displacement of the kidney, it not having risen from the pelvis; and this condition will often give very marked symptoms, especially in women during pregnancy and parturition. The fact that such a condition is rare will make it all the more confusing when it occurs, again, especially in the paired viscera or in organs physiologically associated the pain complained of will be misleading, for example, affections of one kidney may cause pain in the other or pain in the bladder region. We all know how unreliable pain may be as a symptom when taken alone. We have the abdominal pain in pneumonia, the gastric crises in syphilis and abdominal pain in spinal caries. We often see people complaining of abdominal pain that will be found to be really in the large muscles and caused by an infection far removed—teeth, tonsils or sinuses. There is a case mentioned in the *A. M. A.*¹ in which pain was complained of over the right nipple area. Pressure over the appendix caused the patient to cry out and place his hand over the right nipper. The appendix was removed and showed evidence of old and recent inflammation. The patient's pain was relieved.

In considering chronic diseases of the abdomen, we should always bear in mind, the

fact that many of these chronic conditions have in their course acute crises which may mislead us, unless we are on the alert. For instance the crises of a hydronephrosis. This condition will often simulate an acute appendicitis, especially if there is some infection giving rise to temperature.

Let us now mention some of the abdominal lesions that make up the real challenge to the abdominal surgeon—and let me say here, it is my opinion that one reason chronic disease is a real challenge, is because there is not enough real hard thorough work done on these cases. They are not spectacular nor are they emergencies, so we are prone to treat them lightly. In looking through the literature, I could find plenty material on acute conditions, but that dealing with chronic disease seemed to me meagre.

CHRONIC APPENDICITIS.

This is one of the most common chronic abdominal offenders and also one of the most frequent victims to be condemned and sacrificed for another's offense. A very large per cent of cases of ureteral calculus operated upon at the Mayo Clinic had been previously operated for chronic appendicitis. When studying a case of suspected chronic appendicitis, we should try to get a history of previous attacks. This point is very important and without such a history, there is always a question, as to whether or not the appendix is at fault. We should get a history of an acute attack or an attack with vomiting, learn if the patient is bothered with "indigestion," bloating and fullness coming on one or two hours after eating. Is his trouble influenced by seasons, is there periodicity, is he constipated, are his kidneys affected by it,—as frequency and pain? If they are, to be sure to eliminate them. Has he lost weight, does he run an afternoon temperature? In studying these cases, we must bear in mind early pulmonary tuberculosis. We should use the clinic thermometer, use it patiently, persistently and efficiently, take the temperature every three hours, from early morning until late evening regularly for a week and keep an exact record of it. X-ray of the lungs should be had if there is a question of tuberculosis. Some points to look for in our examination are: rigidity of the right rectus, this is not marked and is best obtained by light palpation, pain in the epigastrium from pressure over the appendiceal area, ileo-cecal tenderness from inflation of the colon or from an enema and tenderness in the appendiceal region upon rectal examination. Examination with the fluoroscope should be made and X-ray picture should be made. In my

opinion. X-ray diagnosis of appendicitis is not at all dependable when taken alone, but it may be an aid when taken with the clinical findings. Bettman², reporting a series of 170 cases of unsuccessful operations for appendicitis mentions 10 in which misinformation was given by the roentgenologist. Of the cases in this list that were operated on, none got relief. Three of the cases that were given a diagnosis of appendicitis had already had appendectomy performed, one 8 years and two 4 years previously. In one of these three, a clinician had advised appendectomy without an examination. He states that the examinations were all made by experienced men. Where the X-ray is of real value in these cases, is in the elimination of the other organs, chiefly the stomach and duodenum.

DUODENAL ULCER.

This should always be eliminated in every chronic abdominal disease. To do this, we should begin, of course, with a thorough and complete history, this in any case is often difficult to obtain. The patient will minimize, magnify or forget important points in his history. We are often compelled to virtually dig the history out of him.

Is he bothered with bloating and belching, relieved by soda or food, does his distress come on several hours after eating, is there periodicity, is it seasonal? This will often help us to differentiate ulcer from appendicitis, as ulcer has a tendency to appear in the spring and the fall. Has his condition come on gradually without acute attacks and has it lasted over a long period of time? Of course, we often have an ulcer associated with a chronic appendicitis or gall bladder or we may even have all three conditions present. The X-ray here is invaluable. However, it should be used always by an experienced man, who will co-operate with the surgeon.

CHRONIC GALL BLADDER DISEASE.

This is the most deceiving of any lesion affecting the intra-abdominal viscera. We sometimes have the most distressing symptoms pointing definitely to the gall bladder and at operation will find that organ apparently normal. Again, we operate for some other abdominal disease with no history of gall bladder attacks obtainable, no acute attacks of jaundice and no tenderness in this region upon examination and find a gall bladder markedly distended and filled with unhealthy looking bile and stones. John B. Murphy,³ stated that 86 per cent of gall stones operated on, never had jaundice in the early course of the disease. Here again the X-ray is important. A careful fluoroscopic study should

be made. See if there is hyperperistalsis, eliminate ulcer, get a picture, a negative picture does not eliminate the gall bladder, but a positive one condemns it. Some men claim that any gall bladder that casts a shadow is pathological.

A condition that is sometimes found and which stimulates gall bladder or appendicitis is a stenosis of the duodenum. The result of compression of the bowel between the root of the mesentery (containing the superior mesenteric artery) and the aorta. The superior mesenteric artery comes off the aorta at the first lumbar vertebra, the duodenum crosses the second lumbar vertebra, the mesentery artery passing down in front of the duodenum, place the latter in an acute angle, which is increased by the upright or dorsal position of man. James McKenty reports a series of 28 such cases and gives as some of the symptoms, chronic dyspepsia and headache relieved by vomiting of bile. He says X-ray is the most important means of diagnosing this condition.

ADHESIONS.

Woe unto him who operates for adhesions, unless he has a very definite, clean cut indication such as intestinal obstruction. If all the people who have adhesions were operated upon our hospitals would be so full there would be no room for anyone else. In the first place, adhesions in the majority of cases do not cause symptoms, secondly, they are not cured by operation. Many of these people, who come complaining of "adhesions" have been told by someone that that is their trouble. They are often neurasthenics and the fact that they are willing to submit to an operation is by no means justification for the performance of the operation. If we allow ourselves to be induced to operate in these cases, we will have a patient, who is no better but worse for it. He will be a source of no little worry to us and about all we can hand ourselves, will be the lame abbi, "he wanted the operation and he recovered from it."

The majority of men today do not seem to attach much importance to the condition of ptosis of the various abdominal organs. At the University of California thorough X-ray examination of the gastro-intestinal tract were made of three hundred young men and three hundred young women, mostly students and representing different types. Athletic muscular type and the slender delicate type—the stomach and colon were found below the

iliac-spine in 80.6 per cent. They often reached into the true pelvis. There were no untoward symptoms referable to this condition. The conclusion drawn was that ptosis of abdominal viscera has very little real significance pathologically.

In all the ailments of which men may be a victim, there is none that will give more vague and varied symptoms, that will mimic more different pathological conditions than syphilis. There is not an organ nor a tissue in the human body that can be said to be immune to the ravages of this disease. Neither youth nor age nor sex nor station nor walk in life can bar against it. Babies are born into the world damned by it. The first knowledge the victim of syphilis may have of its presence, may be late in life, when he becomes unsteady in his gait or his memory begins to fail him and he is told by the physician that he has syphilis. Syphilis will destroy the victim's sight, it is one of the chief causes of arterio-sclerosis and aneurysm, the Charcot joint is a monument to its havoc. When we consider all the dire possibilities of this dreaded disease, why is it we are not more on the look-out for it and why do we not make more Wassermans? The answer probably is, we hesitate to suggest such a possibility as syphilis to our patient or we may believe it out of the question ourselves for him to have it. We must remember the innocent often suffer from this disease. We should not hesitate to advise a Wasserman and if it is positive, we should be very charitable but frank in telling him what the trouble is. One should always bear the possibility of this disease in mind when studying cases of a chronic nature. If there is the slightest indication of syphilis, we should by all means have a Wasserman made. Or if the case is vague and we cannot put our finger on any definite lead then we should insist upon a Wasserman.

In conclusion, it may be said, the man who never makes a mistake in medicine should be watched. We all make them. There is a certain good to be derived from a mistake since we know they are bound to be made. First, it will serve to hold the conceit in restraint, second, great benefit may be derived from a study of how and why it was made and how it might be avoided. But our mistakes will diminish as our thoroughness in examination increases. D'Arcy Power said the worst mistakes he had ever seen, were those caused by want of examination. He referred to Caroline, Queen of George II, who was treated for strangulated hernia with purgatives by John Ranby who failed to examine her. The case mentioned by Bettman, where one Clinician had advised appendectomy with-

out examination of the patient who had already been appendectomized, should emphasize the importance of an examination. Such an error, to say the least, would be somewhat embarrassing to the clinician.

The points to be especially emphasized in trying to arrive at a diagnosis in these cases, may be summed up as follows: A careful and complete history; we should take plenty of time, have the patience to listen to your patient's story, let him tell it through without interrupting him or cross-questioning him, get his confidence, take notes as he relates his story, we often get valuable points this way that would be lost by question and answers. After he has finished, study the notes taken, then begin questioning him on the points that seem important. After our history is complete we should not hide it away and forget it, but study it thoroughly and analyze it completely. Have him return and question him again and see how the second history compares with the first; it is surprising sometimes the important facts that are brought out at the second session after the patient has had time to think it over.

In the examination it is a good plan to have a system of beginning and ending at a certain part of the body. We should never be in a hurry in the examination of a patient; if we haven't the time to finish, have him return, make notes on our examination and study them, check the history and clinical findings with the X-ray and laboratory. If we do these things and not take anything for granted and not jump at conclusions the chronic abdominal conditions will cease to be the bug-bear they have always been.

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Isolation of Tubercle Bacilli.—Methods are described by Tulloch et al. for the isolation of tubercle bacilli direct from sputum and morbid exudates. A serologic survey of tubercle bacilli isolated from human sources shows that these all conform to one serologic type. Chronic tuberculosis can be produced in guinea-pigs with virulent tubercle bacilli provided that the dose be sufficiently small. The weight charts alone cannot be regarded as of much value as an index in therapeutics. There is no evidence that any of the antigens employed exhibited therapeutic qualities. Methods are described whereby it may be possible to repeat the experiments of Webb and Williams with a simple technic.

THROAT COUGHS.*

By S. G. DABNEY, Louisville.

Throat Coughs are sometimes acute, sometimes chronic—in the latter case it is wise to carefully examine the chest also. The cough varies in severity from a slight hemming to paroxysms so severe as to cause nausea and vomiting. As a rule there is slight if any expectoration—perhaps a little pledget of mucus. Exceptionally there is rather profuse expectoration. In the presence of acute inflammation or ulcers the cough may be attended with pain. There is often, but not always hoarseness or discomfort in the use of the voice. The sputa may be slightly blood-tained and even a few drops of blood may be expectorated; but when half a teaspoonful or more of blood is expectorated a thorough examination of the lungs and heart should be made. Very rarely (malignant disease and ulceration excepted) is as much as a teaspoonful of blood coughed up from the throat. I formerly thought this was never the case, but I have seen two or three such cases in which I think the blood came from the larynx or trachea. In every case of slight bloody expectoration, the nose, nasopharynx, pharynx, and the region of the lingual tonsil as well as the larynx should be examined.

Throat coughs may be excited sometimes by use of the voice, sometimes by irritating inhalations (as dust) and sometimes by posture. In inflammatory affections of the throat, the disease usually involves more than one region.

In order of their frequency the most common causes of throat cough are as follows:—

Simple Chronic Catarrhal Laryngitis. When uncomplicated the cough is usually dry or attended with expectoration of little pledgets of mucus. It varies greatly in severity. Hoarseness is usually present. There is often discomfort but rarely pain in the larynx. Irritation of the inter-aryteroid area, the posterior wall of the larynx, the space just beneath the vocal cords, and the bifurcation of the trachea is especially productive of cough. The latter (tracheal bifurcation) seemed to be the exciting point in certain epidemics of gripe.

The causes of chronic laryngitis are numerous and often several are combined. Under disturbances of the health, we look for associated disease of the lower passages, for disturbances in the circulation, for digestive disorders and constipation, for the abuse of alcohol and for too sedentary a life. Under

direct irritants we find a dust laden atmosphere and tobacco, especially cigarettes, and the faulty use of the voice. Under local causative factors we find nasal obstruction with the consequent breathing of a dry irritating air, naso-pharyngitis with secretion dropping into the larynx and chronic granular pharyngitis, which by causing frequent hemming and hawking keeps the larynx irritated.

Examination should include the nose and pharynx as well as the larynx. The most marked laryngeal change is in the redness of the mucous membrane and sometimes thickening on the posterior wall and of the vocal cords. A distinctly unilateral redness or any localized infiltration or any ulceration is strongly suggestive of tuberculosis, syphilis or cancer—diseases not included in this article.

The treatment of chronic laryngitis should first be directed to the cause—other diseases of the respiratory tract, disturbances of circulation, digestive disorders and constipation should be corrected; free nasal respiration should be brought about—surgically if necessary; treatment of the nose and nasopharynx is important, and sometimes of the pharynx also.

A viciated atmosphere and faulty or excessive use of the voice should be corrected and smoking and alcohol forbidden. Direct applications to the larynx are best made with a downward curved atomizer, carried well over the epiglottis. The commonly used spray of camphor and menthol each five grains and oil of eucalyptus, 3 minims to the oz., of alcohol is useful. The modern silver preparations (argyrol 10-20 per cent and neo-silvol 5 per cent) are often valuable, but in my experience weak solutions of nitrate of silver (3 to 10 gr. to oz.) are more effective.

With many chloride of zinc (5-10 gr. to oz.) is a favorite remedy; in some cases Syrup of Hydriotic Acid or Iodide of Potash internally is of value. Codein may be called for to control the cough.

Chronic Granular Pharyngitis. Chronic pharyngitis is a much used term yet it rarely exists alone; it is commonly associated with naso-pharyngeal and laryngeal affections. It is described as Hypertrophic Granular and Atrophic—only the most common form—the granular is here considered. It is characterized by reddish bumps or granules on the pharyngeal wall and often dilated vessels are seen coursing over the pharynx. The chief symptoms are tickling and discomfort in the throat, causing very frequent hemming and hawking. All that has been said of the relation of laryngitis to disturbances of the general health holds true here also—with special emphasis on the digestive tract. The

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granules are enlarged lymph follicles or muciparous glandules. The causative factors hold first place in treatment. Hot saline gargles are palliative; argyrol or neo-silvol dropped into the nose after cleansing have a good effect and application of Lugol's solution of Iodine (iodine 5 grs., iodide of potash 10 grs., beechwood creosote 5 mins., in half an oz. of glycerine) to the pharynx and nasopharynx is often very helpful. A gargle of three minims of carbolic acid, 10 grs., tannic acid, two drams of glycerine and water, enough to make one oz. is often pleasant and beneficial. The proprietary preparation called "Glycotanphene" is convenient, and ten gr. solution of silver is worth occasional use. These measures failing (as they often do) the application of the electro-cautery should be made to the granules—this often improves the cough.

Acute Laryngitis. The most important, though far from the most common, type of cough is the hoarse metallic croupy kind which in children precedes the symptoms of laryngeal obstruction. When this cough follows a membranous inflammation of the pharynx, antitoxin should be at once administered, even though no Klebs Loeffler bacilli have been found and no diagnosis of diphtheria made. Several times, twice in the children of physicians, I have been called to do intubation when the preceding pharyngeal inflammation had been pronounced non-diphtheria—largely from the microscopic examination. In such cases it is in my opinion, more likely that there has been a mistake in diagnosis than that the laryngeal obstruction is due to the streptococcus. Acute laryngitis (with croup) is in children often due to adenoids; the disease in children demands close observation both because of the danger of mistake in diagnosis and because acute laryngeal inflammation is likely to be more serious in them.

Treatment of the non-diphtheric type consists in steam and benzoin inhalations, soothing sprays to the nose and larynx, hot packs to the neck—sometimes an emetic, and a mercurial laxative. The household remedy of rubbing turpentine and lard on the throat and chest is often valuable. Rarely intubation or tracheotomy may be called for. The severe septic oedematous form are not here considered.

Acute pharyngitis is attended usually by fever, sore throat, pain and tenderness in the neck and a coated tongue. There is often oedema of the uvula, and this is the chief cause of the cough. The severe septic forms are not here considered.

Treatment: Calomel and saline purge; hot packs to the neck or ice-bag if preferred; irrigation of the throat with hot saline used in fountain syringe, followed by an astringent gargle, cleansing nose and naso-pharynx with spray or dropper and dropping argyrol in nose and hawking it out.

Elongated Uvula. This condition is usually associated with inflammation of the pharynx and naso-pharynx which the frequent hawking helps to cause it. Treatment of this cause and an astringent gargle may be sufficient—indeed one of the most eminent authorities considers uvulotomy one of the rarest operations demanded in laryngology. Notwithstanding this opinion I have seen many coughs relieved by this simple procedure, and in one instance I saw morning vomiting so relieved.

Enlarged Lingual Tonsil. The little mass of adenoid tissue between the base of the tongue and the epiglottis sometimes becomes enlarged and by tickling the epiglottis causes cough. Occasionally there are dilated vessels on this mass which give rise to spitting of a few drops of blood, usually in the morning. The best treatment is the application of the electro-cautery or cutting off the adenoid mass.

Auditory Canal and Nasal Disease. It is common experience to find cough caused by touching certain areas in the nose, especially the anterior and posterior end of the inferior turbinate and the tubercle of the septum. In my own experience cough from disease of these regions is rare, but such a possibility should be remembered.

Hypertrophoid tonsils sometimes but rarely cause cough. Treatment is tonsilleectomy.

Foreign bodies in the pharynx and larynx sometimes, but do not always cause cough (foreign bodies in trachea and bronchi are not considered). Recently I removed a gold band which had dropped from a tooth into the pyriform sinus, where it produced pain but no cough, and I once removed a cockle burr from the laryngeal aperture which caused only slight coughing.

DISCUSSION

W. B. McClure, Lexington: There is a mistaken idea that a simple cough is something that is easy to get rid of. I know of nothing more distressing than a laryngeal cough which fails to yield to any and all treatments which we may attempt. I think it is important, if possible, to make a distinction between a laryngeal and a pharyngeal cough.

I believe a great many of these cases that Dr. Dabney refers to as showing blood comes from

the pharynx in the neighborhood of the tonsil. I have frequently found in those cases the crypts of the tonsils filled with a hard cheesy, chalky mass that almost has cutting points which I think may be in a measure responsible for the presence of blood.

There are certain irritants that may produce this cough, either pharyngeal or laryngeal. I think I have seen in my own experience people who came from the country that are used to sitting before wood fires, and the use of natural gas is responsible for the presence of this cough. The same is true of smoking in some individuals.

Now I differ slightly from Dr. Dabney's suggestion of the use of menthol in these cases. I believe that if the case is acute (and they usually are) menthol is too stimulating to spray upon an acute surface. On the otherhand, I heartily endorse the use of nitrate of silver whether sprayed or made by topical application. There is nothing in my hands that has given the satisfaction that nitrate of silver has—I mean so far as local applications are concerned.

I likewise have found great benefit from the inhalation of benzoin in some form; I usually use the compound tincture.

I am in doubt as to whether or not there is in reality the so-called nervous cough. I think that we frequently find this in hysterical people, people who have a cough because they think they have to cough. They just get the idea that they are going to cough, and they do cough. After all is said, in my hands there is nothing in the way of medication that relieves these conditions like some form of heroin. I like that better than I do the morphine or the codein. I think that if our patient has no idiosyncrasy against its use, heroin in some form is the best remedy we have to control these conditions.

A. L. Bass, Louisville: There are a couple of things I would like to refer to in Dr. Dabney's paper. He has given us a very good paper, which he does usually.

Sometimes there isn't much in the throat to show for the cough, and I think it is characteristic after you get on to them to find it is systemic rather than local, that the cough is a symptom rather than a disease. That is to say that these patients—a lot of them—have persistent coughs and if you have the urine examined you find probably that they have an acidity of 90 to 100, or something like that. If you clean out the intestinal tract and alkalinize them, you find the relief without much local treatment or cough sedatives.

On the contrary, if you do not do these things you can treat with cough sedatives and you do not get relief.

Dr. Dabney ruled out foreign bodies in the bronchi. I cannot help but report one case that may help us in working out some of these cases. It may come close to you like it did me. About the middle of last October my little girl, three years old, who is about as healthy and husky as I look and never had a sick day hardly, began to cough. She had a dry, mechanical cough, and nothing to show for it. I had her urine examined; it didn't show anything. At the same time I cleaned out her intestinal tract. I used cough sedatives, and that didn't have much effect on her.

I had one of the best children's specialists that we have go over her. He said there wasn't anything in her chest to account for it. She might go along for an hour or for a day without any cough. All at once she would break loose with a cough. She had no temperature and nothing else to go along with it.

After she kept this up for about four to six weeks, I decided to have her X-rayed, and see if she did not have an enlarged thymus or something like that. I took her down to Dr. Keith's office and told him I wanted him to X-ray her chest to see if she had an enlarged thymus or some glands around the roots of the bronchi, expecting to use a little X-ray on her.

The X-ray, to my astonishment, showed a shawl pin down, in the left lower bronchi just behind the heart about a sixteenth of an inch from the diaphragm—about the worse place it could get. I didn't waste much time in getting that thing out of there. Fortunately it was removed and she is well and hale and hearty as any one today.

Gaylord C. Hall, Louisville: I want to thank Dr. Dabney for his paper. In speaking to some of us before the Eye, Ear, Nose and Throat Section, he rather made an apology for his subject, and said that it was very trite and commonplace, but we all know that Dr. Dabney has the happy faculty of taking a trite and commonplace subject and exalting it into something important, and I think that a great many things that we might well consider in the paper that he has just given us deserve our attention.

My own opinion regarding an elongated uvula, and I speak now of a chronic elongation and not an acute condition, is that in some instances it arises from diseased tonsils, and that the best treatment is the removal of the tonsils. As the tonsils are removed the uvula shrinks up.

I think that one of the causes of cough which might be mentioned is a dryness in the throat that occurs especially in women and I think is due simply to the lack of water drinking. If you will question them carefully, they will say, "Doctor, I don't know, maybe I don't drink but a glass or two glasses of water a day. Some-

times I go for days without drinking a glass of water possibly except a little at meals." That patient is manifestly getting too little water. There is a dryness of the membrane, and as a result there is this consequent cough.

I would like to especially emphasize what Dr. Dabney said in regard to the superiority of the solution of nitrate of silver as topical applications over the organic silver preparations. There seems to be a stimulating effect from the nitrate that you do not get from the organic silver preparations.

Regarding the blood in the sputum, excluding acute conditions, when the blood may appear simply as the result of the irritation in the throat, I can recall six or seven cases in the last twenty years that I have seen. These people were in apparent good health. They had a cough which didn't bother them enough to have them seek a physician's advice; they just had a little cough and thought nothing of it. They received a scare when they coughed a little blood stained mucus, and it was far less than a teaspoonful, I think, and possibly it didn't recur for several weeks. They immediately consulted a physician, who assured them that their lungs were absolutely and positively negative. The case was referred to me for examination. I looked over the nose, the nasal pharynx, and especially the region of the lingual tonsil and the larynx. There was nothing there in any of those situations to account for the blood in the sputum. Several of these cases ran on for months with a persistent negative chest, and I know that today three of them are dead of tuberculosis.

If Dr. Boggess is in the room he will recall one of the cases. Another one was the son of a physician here in Louisville and another was the wife of a prominent attorney. I would therefore emphasize that in chronic conditions wherever blood appears in the sputum, however little the amount, be certain to look further than the throat and consider very, very carefully the chest.

I wonder if in those cases where the disease is so little advanced, where physical signs by the ordinary methods are negative, a careful stereoscopic X-ray of the chest would give us any additional information.

O. O. Miller, Louisville: I am always grateful to Dr. Dabney for giving some warning with respect to tuberculosis in these cases. On many occasions I have heard Dr. Dabney warn his audiences, in case of blood spitting, to be on guard for pulmonary tuberculosis. I think it is a very valuable suggestion.

In the tuberculosis clinic at the City Hospital we require one of the five following criteria for a diagnosis of pulmonary tuberculosis: tu-

bercle bacilli in the sputum, or persistently localized rales in one apex, or a history of pleurisy with effusion, or a characteristic lesion in the X-ray film, or a history of frank haemoptysis.

Wherever we find a patient with a history of frank haemoptysis, for which there is no assignable reason or explanation, we feel it is a case of pulmonary tuberculosis.

We do, occasionally, get cases that give a history, such as Dr. Dabney has described, or spitting just a little blood. They apparently have no loss of weight or strength, or loss of well being. To the most careful and repeated examinations they do not reveal any abnormality. Stereoscopic X-ray pictures of these chests may show them to be suspicious but not diagnostic of tuberculosis. Under these circumstances we do not feel warranted in discharging them as negative for phthisis. We endeavor to follow these cases for a year or more and re-examine them periodically to make certain there is no active tuberculosis present. During this time we refer them to a throat clinic for examination.

If the patient gives a history of a deep bronchial cough with successive sputums streaked with blood, during the day or on several days following, we consider that is very suspicious for tuberculosis. One history of blood-streaked sputum does not amount to much—but we follow these cases carefully none the less.

In regard to Dr. Hall's case, I think that stereoscopic X-ray pictures, interpreted by a competent roentgenologist, would be invaluable; in fact, we feel that no chest examination is complete without good stereoscopic X-ray pictures.

C. E. Purcell, Paducah: In the first place I want to say that I was a student and listened to Dr. Dabney lecture, and it was the unanimous opinion of the students that he always knocked a home run. I mean by that when he made a point he kept hammering it in until every student there realized what he meant and he made himself fully understood.

I see that he has not forgotten any of his old traits.

A cough might be a simple thing and it might not. A cough usually is a sign that there is something wrong.

I have a particular case that shows the importance and the value of careful examination and prognosis, and that is what Dr. Dabney emphasizes. This was a child, a boy ten years old, that had had six or eight weeks previously, diphtheria, and he came with high fever, a great deal of cough, and he expectorated a great deal of foul pus. On examination with a mirror it developed that the child had a paralysis of the larynx. The cords remained open and

would not close. It also developed at the time of the examination that his cough was a tracheo-bronchitis, septic in nature, and evidently was due to the filling up of both pyriform sinuses and running over into the windpipe. In fact, I could see with the examining mirror that the cords were wide open and secretions were dropping over from the pyriform sinuses into the trachea.

It was decided, from the history of the case, that no X-ray would be of any help in this particular case because there was no question of a foreign body in the lung or air passages. However, it was thought it was possible there might be a foreign body in the esophagus. Before we began treatment, I decided to pass the esophagoscope in order to clear the diagnosis of the possibility of a foreign body in the esophagus. This examination revealed no foreign body in the esophagus, and it also revealed there was no paralysis of the esophagus. The next step was to the treatment of the case, and so far as I have been able to find out from my friends, it is a unique case that was cured absolutely without a single dose of medicine. I cured the purulent tracheobronchitis and the cough and everything without a single drop of medicine.

I put the patient at an angle of about forty-five degrees, head down, so the secretion could not drop down the windpipe. However, we did give the patient some strychnin on general principles and kept him in the hospital about a week; his paralysis cleared up and we sent him home.

I am afraid that Dr. Bass didn't make himself exactly understood when he related his experience with coughs. Don't get the idea from Dr. Bass (I got it but I am afraid somebody else didn't) that a foreign body somewhere in the passage does produce or might be productive of cough. In fact, a great many cases of foreign bodies in the air passages or even in the food passages are not associated with cough and, therefore, cough is not a reliable symptom to judge whether there is foreign body or not.

S. G. Dabney, Louisville, (In closing): I was interested in Dr. Purell's case in which he told about posture. I think it is a point that a good many of us overlook, myself included, in these acute bronchial, more particularly tracheal, inflammations. A position of gravity will help the patient.

I had a case of a cockle-burr sticking in a boy's larynx. He pulled it off his sleeves with his lips while he was out hunting, took a breath and sucked it down to the top of his larynx. That bears out what Dr. Purell has said, that we must not conclude that there is not a foreign body in the air passages from the absence of cough. You may have a foreign body there

with no cough. This patient with the gold ring didn't have a particle of cough.

SYMPTOMATOLOGY OF CHRONIC INTESTINAL STASIS.*

By CHARLES G. LUCAS, Louisville.

The widespread publicity concerning "auto-intoxication" not many years back accentuated a fear, long prevalent in the minds of the laity, concerning any condition of the body relative to retention of fecal material within the bowels. In some cases every possible symptom is attributed to the failure of the bowels to act even for a single day while it is the experience of all of us that some cases where chronic intestinal stasis is marked present no symptoms but on the contrary are full of energy and able to attend to their every day affairs.

Any interference with the normal rhythmicity of the bowels naturally has some effect and if long continued, the effect becomes more and more marked. When we consider the long list of causes that lead to chronic intestinal stasis, it is remarkable that more trouble does not ensue. Here, however, the individual resisting power of each case plays an important part.

The work of Lane has focused our attention on chronic intestinal stasis as the cause of many symptoms but I think it has been definitely shown that the need of surgery in this condition is only in a limited number of cases.

When we consider, for an example, the influence of the various infections, we find in certain cases, as has been shown by Smithies¹ and others, that the wall of the intestine shows quite well the effects of acute and sub-acute infective processes, a real tissue infection, even to the scarring as a result of repair, in other words, a myositis of the intestinal wall itself. This leads to interference with the normal intestinal contractions of the bowel and gradually symptoms develop.

And as to these symptoms opinions differ. Lane and his followers believe that chronic intestinal stasis is productive of so many changes in the body that nearly every organ shows its effect; on the other hand, many observers believe that stasis itself is not incompatible with good health in many cases and in those cases that have marked symptoms, careful analysis will show other organs to be the exciting cause.

*Clinical report before the Louisville Medico-Chirurgical Society.

However, the question of absorption of poisonous toxins has given rise to much discussion and many investigations. It has been shown that there are at least 176 types of organisms that may be harmful and I think it will be admitted that with such interference with normal contraction of the bowel, as we have in stasis, with the myositis produced and the possible breakdown of the natural defense of the organism, certain clinical phenomena may be produced.

The symptomatology will depend much on the type and cause of stasis.

The subject of focal infections has been pre-eminent. The influence of infected tonsils, teeth, sinuses and the results of infected gall-bladder, appendix and other abdominal organs may be the exciting focus of the changes in the colon so graphically described by Lane. Undoubtedly, many cases begin in childhood, due to habitual overloading of the intestinal tract and even with the pathologically changes that develop as the patient grows older and is subject to the different acute infections, there may be no change from the ordinary until some factor, as a psychic breakdown occurs and the symptoms of stasis develop.

These may be classified as to type. When due to increased intra-abdominal pressure from tumor of various organs, the symptoms develop slowly to a certain point and then become well marked; when due to infective processes in the bowel itself, the symptoms vary. In some cases, so long as the contents of the colon are fairly solid, the patient is comfortable. But so many of these patients are obsessed with the "regular" action of the bowel, that purgatives are usually taken daily and as a result the effort is being constantly made to keep the bowel contents in a fluid state, a condition in which bacterial changes are increased and absorption of toxins favored.

In the well marked case, every possible symptom will be found. The patient gradually loses flesh and becomes undernourished; the quantity and quality of food is diminished and this factor, together with the constant use of purgatives tends to exhaust an already fatigued bowel. With this loss of flesh and inadequate food supply, a state of malnutrition develops with all of its accompanying symptoms.

The gastro-intestinal canal shows the effect of chronic stasis in the changes in the form and position of the intra-abdominal organs. The inability of the liver to accommodate itself to these changes result in various symptoms. The tongue is coated, the breath becomes foul. In some cases nausea and

vomiting are the prominent symptoms. In one of my cases under observation for the past ten years this has been marked. During this time this patient has been subjected to five abdominal operations, the last of which, a colostomy, has given some relief from this most distressing symptom. In some cases, abdominal distress, flatulence and even pain, at times, is noted particularly after the use of purgatives.

Lane has emphasized the changes in the skin, particularly the pigmentation which he notes first in the eyelids with gradual spreading over the entire body. This, he attributes entirely to the effects of chronic stasis but, according to Daniel,² this condition is not special to gastro-intestinal toxemia but is likely due to some septicemic condition involving the adrenals and other organs. Other changes noted in the skin by various observers are purpuric manifestations, eczema, chronic urticaria, toxic erythemata, acne and furunculosis.

The influence of chronic stasis on the nervous system is marked. Many cases exhibit marked depression, melancholia, loss of energy, cold extremities, anxiety, insomnia and among other symptoms, headache. Even in ordinary constipation, headache is the chief and most dreaded symptom. In a case of chronic stasis that dates back to a severe typhoid infection in early manhood, this has been the predominant symptom. Like the case reported earlier in this paper, this patient has been under observation for years and likewise, has undergone a number of abdominal operations, including appendectomy, cecostomy and several "for the relief of abdominal adhesions" without relief. With the headache, and loss of energy we often have the symptom—complex of neurasthenia with the anxiety phobias and in some cases, even delirium and coma. It is only a few years back that epilepsy was believed to be due to chronic intestinal stasis and numerous cases had the colon removed.

Various types of arthritis have had chronic stasis inscribed as the etiological factor. With this we have also neuritis and neuralgia. An example of the mechanical form of chronic stasis being the cause of neuritis was seen in a man fifty with the history of neuralgia of long standing. During childhood he would often go from one to two weeks without bowel movement. After some days spent in cleaning out the colon, a barium enema revealed a markedly dilated descending colon without any evidence of obstruction. Under the influence of diet and medication he is now able to keep his bowel fairly well opened and is practically free from the evidences of neuritis.

Dilatation of the heart with myocardial weakness, dyspnea, irregular pulse and palpitation have all been ascribed to chronic stasis. Sir James Mackenzie³ has called attention to toxic angina and the exhaustion that such subjects suffer in the following words:

"It is not always easy to find the real cause of this condition, although I think that there is now enough evidence to show that, in many cases, it is due to some toxic influence. A very considerable portion of those who suffer so readily from exhaustion have distinct evidence of gastro-intestinal troubles. Many complain of different signs of dyspepsia, and we can often detect evidence of stasis in some portion of the intestinal tract even when there is no complaint made by the patient of indigestion. Constipation is often present. Many years ago, I was struck by the disappearance of those characteristic vasomotor phenomena (cold hands and feet) in a man with chronic duodenal ulcer, on whom a gastro-enterotomy has been performed.

Although absorption of the products of decomposition from the intestines is probably the most common cause, absorption from other centers of infection is possible, as from the teeth, and obscure inflammatory conditions such as chronic appendicitis. A typical form is seen after exhausting illnesses such as typhoid fever or influenza. In fact, any prolonged bacterial infection may give rise to it."

Not only have various cardiac affections been ascribed to chronic stasis, but the many changes leading to arterio-sclerosis also. In fact, a review of the literature will show that every organ in the body has been involved in this discussion at various times. Reflex asthma and other pulmonary conditions and the various changes that give rise to the different forms of nephritis are included. Also, the development of exophthalmic goiter and even the beginning of malignant disease of various organs, come within the wide range of chronic intestinal stasis.

These symptoms may even yet be multiplied and I believe that the entire symptomatology of intestinal stasis will continue to be unsettled until the problem of "intestinal toxemia" is settled.

DISCUSSION.

C. W. Dowden, Louisville: Dr. Lucas' closing statement struck the keynote, i.e., that the symptomatology of intestinal stasis will never be settled until the question of intestinal toxemia is solved. It is evidently his belief that the symptoms described are due to absorption of toxic material from the intestinal tract particularly the colon. Whether or not this is true nobody knows, consequently great divergence of opinion exists.

I have always believed in the opposite theory, i.e., that the symptoms of chronic intestinal stasis could not be due to absorption of toxic material because they are often so promptly relieved by the administration of a purgative. I cannot conceive of a general toxemia or systemic infection being relieved within a few minutes by merely cleansing the intestinal tract. If the symptoms are not due to absorption of toxic material, then we must accept the irritative theory of Alvarez, with which all of you are familiar.

Fluoroscopy after barium ingestion has demonstrated that peristalsis begins in the stomach, frequent waves passing downward through the small intestine toward the cecum; in the cecum and ascending colon contractions occur about every thirty minutes; when the material reaches the transverse colon there is a "mass action" about every six hours; when the intestinal contents reach the rectum there is a powerful contraction every twelve to forty-eight hours and defecation occurs.

It has been shown experimentally that by reversing a small intestinal segment this routine peristalsis fails to occur, that when the material reaches that point it ceases to progress. Dogs treated in this way may live on a soft diet, but when solid food is given it is arrested at the first suture line, producing marked irritation with reversed peristalsis and proximal distension. This suggests that influence of the nervous system must be considered in the causation of intestinal stasis. Innervation of the entire intestinal tract is through the plexuses of Auerbach and Meissner which are under the control of the sympathetic nervous system. Therefore the question of irritation becomes especially important. Alvarez believed without constriction intestinal distension may occur through reflex action of the sympathetic nervous system.

So far as known, from a physiological standpoint, the colon has no function except as a conveyor of waste material. Intestinal absorption can occur only when the material is in a fluid state. After leaving the cecum the intestinal contents become semi-solid and no absorption could occur even if the colon had an absorptive function. The question whether or not the colon is an absorptive organ has been a bone

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2. Daniel—Clinical Journal—Feb. 1919, XLI, No. 20, Pp. 305-320.
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of contention among physiologists for many years.

W. E. Gardner, Louisville: Dr. Lucas referred briefly to the frequent occurrence of intestinal stasis in patients with neurasthenia, mental depression, anxiety neuroses, etc.,. Neurologists often encounter cases of this kind and they are usually difficult to relieve. In his work on the vegetative nervous system Pottenger refers to the influence of emotion in the production of intestinal stasis, and claims it is a factor in decreasing both the motor and secretory action of the intestine. In emotional upsets from fright, anger, mental depression, etc., the individual may suddenly become constipated, and when the upset subsides a few days later normal fecal evacuations are resumed.

S. G. Dabney, Louisville: I wish Dr. Lucas in closing would tell us something more about the type and location of the headache associated with intestinal stasis. Is it unilateral or bilateral, occipital or frontal? Is it of the migraine type, or is the headache associated with intestinal stasis a type of its own?

Ben Carlos Frazier, Louisville: I believe we have heretofore attached too much importance to the intestinal tract in trying to ascertain the cause of various systemic manifestations. We should treat the patient intelligently and rationally and devote less attention to his intestinal evacuations. At the same time, of course, we cannot entirely ignore the question of intestinal stasis.

As Dr. Lucas stated, some people with marked intestinal stasis are apparently in normal health. Some individuals may not have a fecal evacuation for many days and still remain comfortable. I have had under observation several patients who defecated once every four or five days and still the general health was unaffected. I know one man who has had only one fecal evacuation per week for many years and has never even had headache. Many people think they should defecate at least once daily, and if they fail to do so they resort to cathartics or enemata. Others pay no attention whatever to the matter, and when asked whether they have been defecating regularly they are unable to answer.

Louis Frank, Louisville: Intestinal stasis and constipation are merely symptoms. The former is always due to some type of pathology, while the latter no demonstrable pathology may be present. We must differentiate sharply between the two conditions. Constipation is oftentimes largely a matter of habit. People may be constipated, yet examination may show an empty rectum. If all cases are grouped under constipation, or under stasis, they cannot be explained on the basis of present conceptions. Lane cures

constipation by colectomy, when the ileum is connected with the sigmoid the patient has diarrhea.

Lane's idea that intestinal stasis is responsible for the production of goiter, mammary neoplasms, and a host of other pathologic entities, is beyond my power of comprehension of the causative factors of disease. I cannot believe that all these various pathologic phenomena are due to a single cause. In many cases stasis is cured by appendicectomy or cholecystectomy, and the same statement is applicable to every type of intra-abdominal or intra-pelvic pathology.

I recall several women whose intestines and even the greater curvature of the stomach are in their pelvis, yet they have not a single symptom. I now have in the hospital an individual who had high intestinal obstruction, with jejunum larger than the colon and yet until distension occurred with vomiting of material fecal in odor, he had no symptoms. He was well-nourished as obstruction was not complete. In most cases there is definite pathology to account for intestinal stasis, but to attribute symptoms referable to nearly every organ in the body to intestinal stasis seems absurd.

Many patients with stasis have colitis or some type of infection which can be located and removed, thus bringing about decided improvement of the individual. Insane people are constipated because they have not sense enough to defecate.

C. Skinner, Louisville: Constipation may be due to several causes. First of all is the lack of water intake either before, after, or with meals. The majority of people do not drink enough water. Insane people are constipated because they do not respond to the call of nature; and there are many sane people who have just as much constipation as the insane for similar reasons. Women are constipated more than men for the reason that they are less punctilious about responding to the call to defecate when it comes. Many times they cannot go to the toilet for some reason and postpone the operation until the next day. Some people may defecate only once a week and yet remain in good health.

A case was reported in the literature many years ago where an army officer had not defecated for eight months. During this time he had no evidence of poisoning from absorption or any of the other symptoms now attributed to prolonged retention of feces in the intestinal canal.

We have learned more about intestinal stasis since the roentgen-ray came into general use than we ever knew before. Most cases of constipation encountered are in people who have contraction of the lower intestines rather than atony or dilatation.

It is interesting to note that thus far in the discussion no one has mentioned auto-intoxication, which is a word that should have been discarded long ago. Osler said auto-intoxication was a harbor in which doctors drove their undiagnosed cases.

The question whether there is any absorption from the large intestine has not yet been settled. Fecal material reaches the cecum in a watery state where absorption of the water occurs, but whether any absorption occurs after it passes the cecum is a question which has been much discussed and remains unsolved. I hope Dr. Lucas in closing will give us the latest information on this point, and I would also like to have him tell us whether incompetency of the ileocecal valve has anything to do with the production of the clinical picture usually attributed to absorption in the colon.

J. Garland Sherrill, Louisville: The title of Dr. Lucas' paper was chronic intestinal stasis and not constipation. These are two quite separate and distinct entities. Constipation is merely delayed defecation unattended by any organic lesion, whereas intestinal stasis is due to an organic lesion. If the two conditions are clearly separated the symptoms presented can be easily differentiated.

There is no doubt in my mind,—and I believe it is the teaching of physiologists at present,—that absorption does occur in the colon. In addition the colon acts as a reservoir for waste material until the individual can empty the lower intestinal tract. The intestinal contents enter the caecum in a more or less fluid state, but when the mass reaches the rectum it is quite firm. What becomes of the water or fluid? I believe the greater part of it is absorbed in the ascending and transverse colon, that it enters the blood and lymph vessels along with crystalline substances and nourishing material from the food.

Poisonous material may be absorbed from the lower portion of the colon because of increased bacterial proliferation in that situation. Where the progress of fluid is delayed in the colon from any cause, colon bacilli and other bacteria produce certain toxic bodies which are absorbed and produce symptoms. Where the amount of the poisonous material is small, the patient merely awakens with a headache in the morning after a heavy evening meal. If he takes a dose of salts or something to cleanse the intestinal tract, the headache disappears and he is normal again. That is a very simple affair, an instance of temporary constipation. It must not be forgotten, however, that constipation may arise from atony or sluggish action of the intestine, also because the individual ignores the call to defecate. In most instances the call re-

ceurs and finally becomes so urgent that evacuation must occur. In others the call becomes less and less urgent because the intestine gradually loses its tonicity. I recall a woman who had not defecated for ten weeks, and had to be anesthetized before the intestinal tract could be emptied.

Man is a very adaptable animal; he can adapt himself to the heat of the tropics or the cold of the far north; he may defecate once daily or once weekly and still remain comfortable. Constipation often develops because of laziness or lack of exercise on part of the individual, or from sluggishness or atony of the intestine. In such cases the patient usually complains of headache. Every now and then such an individual takes a dose or two of salts which relieves his headache and he is again normal.

Chas. G. Lucas, (Inclosing): I had no idea that my incomplete paper would provoke such a lengthy discussion. It reminds me very much of some of our early discussions on appendicitis, gastric and duodenal ulcers, etc.

Although, as stated in the paper, 176 different micro-organisms have been found in the intestinal tract of patients with stasis, such organisms have never been detected in the blood stream, and until that point can be settled we shall probably continue to discuss the causes and symptoms of chronic intestinal stasis. Some patients have stasis without constipation, others have constipation without stasis. Because of its prevalence constipation should be known as the great American disease. Millions of dollars are expended every year for purgatives. In England Beecham's pills are generally used, but in this country we have thousands of laxative and purgative preparations.

What brings about this state of affairs? First of all if a child fails to defecate for a day or is not nourishing properly because of the lack of fluid intake, the mother immediately gives a purgative regularly it usually means that there thing happens again, and another dose is given. Parents do not train their children properly. If a child five or six years old has to be given purgative. Within two or three weeks the same is some change in the neuro-muscular mechanism of the intestine or some form of infection. I believe,—and we know Rosenow has definitely proven,—that there is a selective action of certain bacteria, and this seems especially true in the intestinal tract. Infection cannot be cured by salts or other purgatives. Some people take a dose of salts every day, others use compound cathartic pills. I recall one woman who took one compound cathartic pill every hour until eight had been swallowed. She was one of the most wonderful users of purgatives I have even known.

I am of the opinion that in many instances intestinal stasis is due to the fact that the patient has lost his natural reflexes, or he fails to respond to the call for defecation, and after a time the intestine loses its tone and becomes relaxed. We seldom see two cases exactly alike. One patient with stasis will be constipated, another will have an evacuation every day.

In the paper attention was called to the views of Mackenzie concerning absorption of toxic products from the colon. This is a very interesting question which has not yet been definitely settled. In chronic stasis the psychic phenomena are sometimes marked.

I have under observation a woman with chronic intestinal stasis who has been subjected to both appendicectomy and cholecystectomy. That woman is obsessed with the idea that she must have four fecal evacuations daily, and if they do not occur normally she takes something to produce them. The majority of people have their favorite laxatives or purgatives. While powerful purgative drugs are harmful, there is no way to prevent people from taking them. I saw a statement recently that intestinal spasticity was common in people less than thirty-five years old, and that atony was equally common in those over thirty-five.

Another lesion which I think is often responsible for chronic intestinal stasis is diverticulitis. With more extended use of the roentgen-ray a greater number of these cases will be discovered. Many patients with diverticulitis are persistently constipated.

Constipation is often due to the fact that the patient does not ingest sufficient food. The so-called starvation diet is often responsible. The patient does not get enough to eat, yet he expects to accomplish as much work as one who is getting 2500 calories per day. Many of these people do not get more than 500 to 1000 calories daily.

So far as I am aware there is no particular type or location of the headache due to chronic stasis. In the majority of cases coming under my observation it has been occipital. Whether most frequently unilateral or bilateral I do not know. Headache is not always an accompanying symptom of stasis, but occurs with sufficient frequency to demand consideration.

As to competency of the ileocecal valve in relation to chronic stasis: In one clinic of this country a great deal of attention is devoted to this phase of the subject, whereas in another no importance whatever is attached to it. People may be constipated whether the ileocecal valve is competent or incompetent.

MEDICAL LOUISVILLE

Retrospective and Prospective

By WM. B. DOHERTY, Louisville.

Looking backward over a period of more than fifty years, our hearts should be filled with gratitude to the medical profession in view of the great advances it has achieved in that time in the preservation and prolongation of life. Nevertheless a feeling of uncertainty grips me as to future results, while still buoyant with the hope that common sense in our mode of living may prevent the pendulum of time from swinging too far toward luxurious habits, irrational vagaries of culticism and mysticism and unscientific measures for relief by artificial means which tend to lessen vital resistance.

In the year 1872 an epidemic of small pox, confluent and hemorrhagic, pervaded the western portion of the city of Louisville. Very few people unprotected by vaccination escaped its virulence. Deaths were numerous, and those who got well as a rule were severely pockmarked. There was no ambulance, trained nurse, police wagon or telephone in the city and the only hospitals were St. Joseph's Infirmary and the City Hospital. There was, however, an Eruptive Hospital, unfortunately designated a Pesthouse, situated in what is now known as Lilly Avenue. It was a dilapidated old building, characterized by its copious crudities, important omissions, and hygienic negatives. There was great dread of the loathsome scourge. No health law then enacted might force smallpox patients from their homes to the Pesthouse, and few in consequence did go there. A panicky condition prevailed to such an extent that many would not ride through streets where yellow flags, emblems of the presence of smallpox, fluttered ominously from the houses of the afflicted, as an order from the Board of Health preventing ingress and egress to and from the patients' homes. The visiting physician in many instances was the only attendant, the food deliverer and the dispenser, the doctor, and the nurse, as few nurses, even those without any training or experience, could be obtained. Only those exhibiting the true Jennerian scar of a successful vaccination, or convalescents from the loathsome disease, as a precautionary measure, were employed. With the enforcement of thorough vaccination under the supervision of the efficient Health Officer, Dr Samuel Manly (who I am happy to say is still alive), the pestilence was abated and has not appeared since in our city except

sporadically among some of the few who were not successfully vaccinated. A true vaccination shows about the fourth day, a vesicle which appears like a pearl lying on the petal of a rose.

What an inestimable boon to humanity was the discovery of vaccination! One hundred and twenty-seven years ago, Edward Jenner of Clouceter, England, observed that many persons who milked cows were infected with cowpox. By patient, calm, and assiduous investigation he labored in getting materials that would satisfy his professional brethren and the public of the great truth of vaccination that was vital to the welfare of the human race, and in 1797 he wrote his great book about his discovery. Before the time of Jenner, smallpox was the greatest devastator of the human race, thousands upon thousands died from the disease in every country in Europe, Prussia having lost one hundred thousand in one year. Neither latitudinal, longitudinal or altitudinal ranges gave any check to its career. In our own country it was a terrible scourge among the Indians, village after village having been almost entirely annihilated. Schoolcraft says: "The prairie has become a graveyard, its wild flowers bloom upon the sepulchres of Indians. No sound but the raven's croak, or the wolf's howl breaks the solemn stillness. The scene of desolation is appalling." Charlevoix in 1670 says: "The Iroques near Irois Riveres numbered one thousand, five hundred persons. They were attacked with smallpox and not one of the fifteen hundred survived. Vaccination has conquered smallpox."

Malarial fevers (1872) some of a pernicious and fatal type, diphtheria, diarrhoea, dysentery, cholera morbus, cholera infantum, typhoid fever, diseases now only rarely observed in practice, were then very prevalent. There were few sewers, but numerous street corner pumps from which polluted drinking water was obtained, contaminated with sidewalk filth and privy vault drainage laden with disease producing and death dealing bacteria. The western and southern portions of the city had a number of swampy ponds, stagnant pools and marshy districts, fertile breeding places for the genus, anopheles of mosquito, whose bite introduces into the system a micro organism, the Plasmodium Malariae, the cause of malaria. The inauguration and organization of an extensive system of drainage by the construction of sewers, rapidly changed the character of the surface ground of the city. Street corner pumps were removed and the present reservoir built under the skill of Mr. Charles Herman, then one of the foremost engineers of the United States, supplies

the people of Louisville with clean water properly filtered and rendered free from obnoxious germs, by the scientific use of alum and chlorine gas.

What a transition from the graveyard of the West, a ghastly sobriquet applied to Louisville in 1822, then a straggling village, dotted with stagnant ponds, to the present city of Louisville, one of the healthiest and most beautiful cities in the United States, having fewer tenement houses, better living facilities, outdoor breathing spaces, more comfortable homes with grassy yards and picturesque parks than any city of its size in the country.

Great and beneficent as was the renowned discovery made by Jenner for destroying a scourge that was in its ravages as universal as the presence of man, greater still, more marvelous and general in its application to diseased conditions, was that of Louis Pasteur of Lille, France. In 1854 he began his researches on the diseases of wine and beer and the products resulting from fermentation, also diseases of the silk worm, of anthrax (wool sorters' disease) and rabies (hydrophobia). Thousands of people died of anthrax in Russia, and it was a veritable pestilence among the cattle and horses of France. Pasteur proved by his experiments that specific living organisms, germs, were the cause of those diseases, and that the same was true of many other diseases which afflict man. Those microscopical bodies, though so small, yet were the greatest foes of the human race. Thanks to vaccination, Pasteur conquered rabies and anthrax, and lifted himself to imperishable fame. One may seek in vain for work which can be compared to his or for discoveries from which we reaped greater benefits. He founded the great science of bacteriology and others followed him, widening the scope of his scientific achievements. Among these may be mentioned Koch, Von Behring, Sir Alenrath Wright, Widal, and in the list none have dazzled the medical world by their brilliant research work and wonderful discoveries more than our own Simon Flexner of Louisville, Chief of the Rockefeller Institute of New York, and now of international fame. Bacteriology (Bacteria) and its sister Serology (Serums) and still later Endocrinology (ductless glands) loom larger in the medical mind than perhaps anything else, and have accomplished wonders in the prevention and treatment of disease.

By aseptic means, almost every portion of the body may be explored for surgical relief with impunity, and child bed fever, once the betenir of glorious motherhood, is no longer dreaded. Report from the Surgeon General's

office (Dec. 2, 1924) shows that in the army during the World War from April 1, 1917, to December 31, 1919, admissions per 1,000 per annum, smallpox, .21, no deaths; typhoid fever .37, deaths .05; almost a negligible quantity. During the South African and Spanish-American Wars more died from typhoid fever than from the bullets of the enemy.

What a galaxy of master minds and pre-eminent teachers graced the chairs of medicine and surgery in the university in '69 and the early '70s when I had the honor of being a student there. We had Profs. T. S. Bell, the "Walking Encyclopedia" of medicine; Bayless, the staid, exact philosopher in didactic surgery; D. W. Yandell, the great clinical teacher of surgery and the surgeon of the Valley (Mississippi); L. P. Yandell, brother of D. W., the able and handsome dermatologist; Theophilus Parvin, the erudite Greek scholar and professor of gynecology; the good-natured, practical Crowe, who dwelt strongly on the education of the hand, and the diagnostic sense of touch in obstetrics; the brilliant Palmer on physiology, with the clear, sonorous and captivating voice; the eloquent Holland on chemistry; Cowling, demonstrator of anatomy, witty writer and author, whose "Aphorisms on Fracture" was a classic production; and last but not least, the well-groomed Bodine, with the flowing mustache, whose charming description of the bones, muscles, nerves, tendons, organs and their relations, etc., was dry, hard stuff, but from him was so pleasing and illuminating that it seemed as a musical symphony to the student's ears. Formerly Dr. Samuel D. Gross of Philadelphia, the Nestor of American Surgery whose system of surgery was in the hands of well nigh every practitioner throughout the civilized world; Dr. Austin Flint, author of the best work on practice of medicine that then appeared in any language; Dr. Henry Miller, the writer of a System of Obstetrics that was never equaled by any native publication; illustrious men of national reputation were connected with the University of Louisville and the State Medical Society of Kentucky. The University of Louisville had the largest medical college west of the Alleghenies, and more of its graduates filled the highest positions in the gift of the medical profession than any other university. In 1908 the other medical schools of Louisville merged with it, and it is now a full-fledged university and comprehends the following schools, all of which are open to men and women:

The College of Liberal Arts, The School of Medicine, The School of Law, The School of Dentistry, The Speed Scientific School, Post

Graduate School, with a corps of well qualified and eminent teachers in each department whose graduates attain a very high rating.

We trust that the great and good work of the university will be extended and reach even a higher degree of excellence in the interest of science and humanity by generous financial endowments and liberality at the hands of the people of Louisville.

Science hygiene, and sanitation have done a great deal to prolong life probably twenty years more than it was a century ago. The gain has been largely in the ages of early life. Children are better cared for individually and collectively, are more cleanly in their habits, receive purer air and more outdoor exercise, and parents are not obsessed with the "catching cold" idea as formerly.

"God lent His creature light and air
And waters open to the skies,
Man locks him to a stifling lair
And wonders why his brother dies."

While the average length of life has been greatly increased, the true measure of vital resistance is not the average longevity, but the number of individuals per thousand or million who attain great age. The beginning is auspicious. Many of the diseases of childhood and adolescence, which formerly showed a high rate of mortality, no longer exist, but later in adult life, and after the age of forty, owing to our luxurious and sedentary habits, including stiff-joint automobile riding, the power to resist degenerative changes is lessened. Superfluities in diet, so-called dainty foods, rich, complicated and indigestible dishes, pies and desserts, innumerable in name, and composition, but nearly uniform in indigestibility, and lack of regular, systematic daily exercise are the great factors in inducing pathological conditions incident to physiological changes of advancing age.

Some years ago an itinerant clergyman, traveling through a Western State spent the night with a farmer and in the morning sat down with the rest around the breakfast table to prepare for the long horseback journey which lay before him. The host invited him to ask a blessing upon the food about to be eaten. The reverend gentleman glanced over the table, taking a mental inventory of the food prepared for the dozen hungry mouths awaiting it. There were hot biscuits, steaming from the oven, semi-transparent with lard and yellow with saleratus; there were savory mince pies, rich preserves, pickles, green as grass, coffee black as ink, fried pork, fried potatoes, and a generous supply of doughnuts on the sideboard. Pausing a moment after his survey of the indigest-

ible viands, with a solemn voice the clergyman said: "Friends, this breakfast is not worth a blessing" and concluding that a breakfast not worth a blessing was not worth eating, he went on his journey without it. It is safe to state that those who partook of this conglomerate mass suffered from "gas pains," a term probably more frequently used by those who consult a physician than any other, as a diagnostic sign of trouble under the waist line, or human equator. Intemperance in eating and lack of regular physiological (natural) exercise are too universal among us either to meet general censure or attract notice, except in very extraordinary cases. Seventy per cent of persons in our country over 40 years of age are overfed, are overweight, and a serious impediment to their efficiencies, both bodily and mental, and produce marked degenerative changes, defective vital resistance and inability to convalesce even from minor ailments. The ill and even the well are not so easily disciplined as formerly—

"They praise the vices they are inclined to,
And damn those they have no mind to."

The use of meat once a day, or a cigar or cigarette limited to one after each meal may not be particularly injurious, but meats taken oftener and saturated with rich gravies and blistering condiments are likely to produce inflammation of the digestive organs, abdominal storms, obesity and a long line of attendant evils, acute or dangerous. There must be a well balanced relativity between the human intake of food, the upkeep of the system and its output, to insure good health. A cigar or a cigarette smoked every few hours with increasing frequency, often grows to be a dangerous habit by disqualifying those that indulge in it for the full discharge of their duties and sometimes destroying them. A few of the most distressing and fatal forms of complaint which it produces, are nose and throat diseases, dyspepsia, tremors, irritable heart, impaired vision and intellect, high blood pressure, apoplexy, palsy, etc. The range of its mischief is therefore extensive.

"Ill habits gather by unseen degrees

As brooks run rivers, rivers swell to seas."

The custom of trailing the Hookah with the stench of its abominable smoking mixture by the natives of Hindostan is scarcely less reprehensible than the puffing, malodorous ubiquitous cigar fiend of our land. While medical science has done so much in the prevention of disease and the promotion of health, yet so much more could be done with great advantage if the advice and directions of the regular ethical, family physician were obeyed, instead of persons trying mythical sure cures

by advertisements, and gamble on life as they do on cards or the races, or seek the proverbial pot of gold at the end of the rainbow. The wise man will not wait for marked symptoms of disease or recognized by him to occur before he is examined by his physician. How many sudden deaths, chronic and often incurable cases of illness might be averted if patients were instructed, after acute, abnormal conditions were detected by their physicians, how to fight the battle of life and prevent such dire consequences.

Fresh air, baths, exercise and diet are the great factors; the physiological remedies with which to retain and obtain good health. We have already noted air and diet, but baths and exercise deserve some consideration. Every bath room should have a shower, which combines the best form of bathing with exercise and should be utilized and enjoyed every morning. A tepid or cold bath, provided the shock is not too great, followed by a good rub and setting up exercises, not violent, for five or ten minutes, will be far more efficacious for health if followed by a brisk walk, than the occasional spasmodic pastime of golf or the strenuous athletic feats of baseball or football. Sports in the open air and sunshine, however, for proper muscular development should be zealously encouraged, but are impracticable and inconvenient for the majority of persons. If the shower cannot be utilized, then the ordinary bath and exercise should be used daily, more necessary now than formerly, to prevent the obesity and stiffness of joints due to automobile riding becoming too pronounced. Plain living and high thinking, "sorry fare, but free from care," more outdoor walking, less coddling and less automobile riding must be maintained—

"Oh! may Heaven their simple lives prevent

From Luxury's contagion, weak and vile."

Diabetic Acidosis and Renal Acidosis.—Delore declares that no connection exists between the presence of acetone bodies in the urine and acidosis. The characteristic sign of acidosis is a diminished alkali reserve in the blood. The ammonuria in diabetic acidosis seems to vary parallel to changes in the alkali reserve. Renal acidosis may play a greater part in uremia than the azotemia. He accepts that the kidneys may produce ammonia, which neutralizes the acids. Consequently, reduction in the ammonia production, from disturbed functioning of the kidneys, may entail acidosis. It is assumed that defective functioning of the kidneys may be a secondary manifestation in acidosis. This explains the similarity of diabetic and uremic coma.

PREVENTION OF SUMMER COMPLAINT.*

By JAMES W. BRUCE, Louisville.

Before entering on a discussion of this subject it will be well to define just what we mean by "Summer Complaint." This is a lay term, of course, but it has come to be quite definitely identified with the diarrhoeal disorders of infancy and childhood commonly known as Gastro-Intestinal Indigestion or Fermentative Diarrhoea. Whether the term also covers the group of disorders known as colitis or dysentery is open to question, but the latter will not be discussed in this paper. Summer complaint is essentially a disease of hot weather—hence the name. The heated atmosphere depresses the infant's digestive mechanism to such extent that food lies in the upper bowel in a half digested state and falls easy prey to bacteria. These bacteria ferment carbohydrate and fat and form lactic, butyric, and other acids which irritate the gut and cause diarrhoea. No specific organism is involved. Normal inhabitants of the lower bowel (colon bacillus, proteus, streptococci, etc.) invade the upper bowel and attack the food mass which has been partially digested by weakened enzymes.

Considering the disease from the point of view of its pathogenesis we will all agree that anything that will make food cleaner and more digestible will help prevent Summer Complaint. Let us consider, first, things that make food cleaner and later, things that make it more digestible.

The first and most important factor in keeping baby's food clean is the routine boiling of all milk fed during the hot months i.e., June to October. Milk brought to the boiling point is sterile for all practical purposes. A few spores escape, but all pathogenic organisms are killed. If the boiled milk is immediately poured into sterile bottles and corked and put on ice or into a spring house, there is little chance for bacterial contamination. Milk prepared in this way will keep for days without souring. There are two objections to boiling milk. Boiling kills the antiscorbutic vitamin. However, fresh milk contains little of this vitamin anyhow and all infants should receive fresh orange or tomato juice every day to prevent scurvy. Secondly, boiled milk is constipating. This is a serious objection and may present great difficulty. However, by judiciously increasing the sugar content of the food or by add-

ing one of the liquid malt preparations, this can usually be overcome.

There are other aspects to this subject besides boiling the milk. The utensils, such as funnels, boilers, etc., that are used in preparing baby's food should be used for nothing else. After the formula is made up for the day these utensils should be scoured in boiling water or better still boiled and covered with a clean cloth and put away until next day. Rubber nipples are a frequent cause of trouble. Thrush is caused by a fungus which finds a good breeding place in unboiled nipples. Once a nipple has been used, it should never be put back into a baby's mouth until it has been scoured and boiled. This applies to the nipple on the water bottle as well as those on milk bottles. It seems superfluous to speak of screening the baby and his food from flies and yet this is so often overlooked that it bears repetition.

Turning now to our second point, how can we make baby's food more digestible? Here again boiling the milk is of greatest importance. Boiled milk is more digestible than raw milk. This can be readily demonstrated. If an infant is taking his full capacity of boiled milk and the boiling is stopped, the infant will almost surely have indigestion. On the other hand, if a raw milk formula is boiled, no digestive upset will occur except constipation.

The use of lactic acid milk or buttermilk as a preventative of Summer Complaint has received a great deal of attention in recent years. We know from experience that these sour milks do agree with babies better than sweet milk. It is harder to say why this is so. The most likely theory of explanation is that of the high "buffer" value of sweet as contrasted with sour milk. Briefly it is as follows:—Sweet milk contains large amounts of alkaline salts. When these salts come in contact with the hydrochloric acid in the infant's stomach, they neutralize a great deal of it and thus make it difficult for the infant to produce the degree of gastric acidity which is best suited for gastric digestions. These alkaline salts are called "buffer salts." On the other hand with sour milk, these buffer salts have already been neutralized by lactic acid and so the infant does not have the same difficulty in producing the desired acid state in its stomach at which gastric digestion proceeds most smoothly. The action in the intestinal tract of the bacteria which produce sour milk is probably of minor importance.

There are four ways of making lactic acid milk or buttermilk in common use and it will be worth while to discuss them briefly.

*Read before the Grayson County Medical Society.

1. Churning as it is practised on the farm. The disadvantage of this process is that the milk is never at any time steril, although the rapid production of lactic acid inhibits the growth of most pathogenic organisms. Also the proportion of fat is never definitely known.

2. Allow milk to sour at room temperature and form clabbor. Then break up the clabbor with a churn until it is in a finely divided state. Then add one tablespoonful of sugar and one tablespoonful of wheat flour to each quart of milk and boil on a slow fire with constant stirring. This gives a sterile product which is very digestible. It is the method in general use in Holland where nearly all bottle babies are brought up on sour milk.

3. Boil or pasteurize milk and let it cool to room temperature. Inoculate milk with lactic acid forming bacterial, e.g. Bulgarian bacillus, acidophylus bacillus, streptococcus lacticus, etc. Let stand 12-18 hours until sour. This the method used in most commercial dairies.

4. Boil milk and let cool to room temperature. Add slowly drop by drop and with constant stirring, pure lactic acid U. S. P. One teaspoonful of acid to one pint of milk gives 0.7 per cent acid and is the proportion found in moderately sour milk. This is much the easiest way where sour milk must be made at home.

Once the sour milk is made, it is made up with water and sugar just as sweet milk is except that being more digestible, larger proportions of milk can be used.

Of course in hot weather, it is always safer to dilute milk with more water than in cold weather. A normal baby of 10 months should be able to take whole milk undiluted without difficulty. However, in hot weather it is safer to dilute the milk until baby is 12-14 months old.

Next to milk, the most important article in baby's diet is cooked cereal. The best of these is farina or cream of wheat. It should be cooked 2 hours in a double boiler. Oatmeal is better not used in hot weather. In very hot spells baby's food had best consist entirely of milk, farina and little dry toast. Cereal can be given any time after the 6th month.

Green vegetables can usually be safely given to 7 months babies in cool weather. Of course, they must be boiled very tender and mashed through a colander. However, in hot weather they had better be left out. This brings up the question of how to keep babies from getting anemic during the long period of hot weather, because they depend on green

vegetables for their iron, phosphorus, calcium, etc. This difficulty can be surmounted by using vegetable juice water to dilute the milk. This is made by chopping green vegetables fine, boiling 20-30 minutes, and straining out the vegetable fiber. This leaves the valuable minerals and salts in solution. Also, beef juice can be used as an iron tonic. It is best prepared by squeezing slightly broiled beef in a meat press, thus getting the undiluted juice.

Meaty foods can be taken by normal babies of 12 months but in hot weather it is safer to wait until 15 months. Fine chopped rare beef or breast of chicken or egg coddled or soft boiled, or boiled hard and pulverized are all very valuable. The growing organism needs protein food and should have it as soon as possible.

Just a word about the routine use of cod liver oil in baby feeding. We know that rickets is an almost universal disease. Very few babies escape it entirely. We also know there are two agencies which will prevent and cure rickets; ultra-violet rays and cod liver oil. Ultra-violet rays can be gotten from sunlight or from any of the lamps now on the market for that purpose. The most practical way to get it, of course, is from sunlight. Now cod liver oil is hard to digest in hot weather at the time when sunlight is plentiful. On the other hand it is not so hard to digest in winter when sunlight is harder to get. Therefore if we would feed our babies cod liver oil in the cool months and expose them to morning and afternoon sunlight in the warm months we would have less rickets. As rickets is most apt to occur between the 6th and 18th months, this is the period when these measures should be followed most carefully. Fifteen drops of pure cod liver oil three times a day will prevent rickets.

There are several points about the Summer care of babies besides feeding. Water is most important, inside and outside. Baby should be bathed twice a day. Water should be drunk freely—as much as baby will take, but anyhow 8-10 ounces a day. Saccharin will make water more acceptable to many babies and is absolutely harmless (1-4 gr. to 8 oz.) Orange juice also makes water taste better.

Clothing should be very light. The question of the flannel abdominal band is open to question. Such authorities as Holt, Kerkley, and Richard Smith recommend its use until the infant is 2 years old. Also we know that English people living in India wear abdominal bands as prophylactic against intestinal disorders. However, when you see little babies

perspiring under their bands it is a great temptation to take them off. We have all seen babies that wore bands develop intestinal trouble and we have seen babies that wore nothing but diapers go through without it. I have no set conviction either way, but if a band is used it should certainly be made of the lightest material. Fresh air, of course, is essential, and it is surprising how many people do not yet know this.

One word in closing about the calculation of a baby's milk formula. If this simple rule is followed, it will keep you on or near the right track and make it unnecessary to resort to proprietary foods that have the feeding directions written on the can. Give 1 1-2 oz. of whole milk and 1-10 oz. of sugar to the pound of normal body weight. By normal body weight I mean the amount the baby should weigh for its age. For example, a 6 months baby should weigh about 16 pounds. If, however, it weights 12 pounds, it should be fed the same food as if it weighed 16 pounds, and the formula should be calculated for a 16 pound baby. It is best, of course, to begin with the feeding for a 12 pound baby, but it will not thrive as a rule until the 16 pound feeding is reached. The rule for dilution is easily remembered: 2-5 milk and 3-5 water for the 1st month; half milk and half water for the second and third months; 3-5 milk and 2-5 water for the 4th and 5th months; 3-4 milk and 1-4 water for the 6th, 7th, and 8th months; and whole milk undiluted at 10 months.

I have tried to keep as close to earth as possible in this paper and not to indulge in any fancy unproved theories. Everything that has been written here has been tried and found to work. Pediatrics has developed so tremendously in the past few years that it is difficult at times to keep our feet on the ground and to distinguish between the practical and the theoretical.

Indications for Treatment of Fibroid Tumors of the Uterus.—Goulliond protests against surgical measures in treatment of fibromas in young women and women near the menopause. They should be kept under supervision on the pretext of medical treatment. With a pedunculated fibroma tending to develop in the abdominal cavity, myomectomy may be advisable. Hysterectomy is indicated when the diagnosis is dubious between fibroma or cancer. Radium proved useful in his eighty-six cases of fibroma, free from complications in the adnexa. Roentgen ray treatment may be considered in some cases.

NEWS ITEMS

Karn & Carpenter announce the opening of Owensboro Bacteriological Laboratory Frederica at Fourth, Over Drug Store. Mrs. Bessie Keeney, Technician. Office hours 8:30 to 12 A. M. 1 to 5 P. M. Saturday 8:30 to 12 A. M. A standard schedule of fees will be maintained.

The American Urological Association, which is the largest national urological association, will meet in St. Louis, May 21, 22, and 23, with headquarters at the Chase Hotel.

The mornings will be devoted to clinics in the various hospitals, and the afternoons to the scientific session which will be conducted in the ball room of the Chase Hotel.

For further information write to John R. Caulk, M. D., Chairman of Arrangements.

The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and mal de caderas) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co. of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial cooperation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

Simultaneous Lesions of Homologous Organs in Mother and Fetus.—Merklen, Wolf and Oberling report a case in which delivery had been induced at the eighth month on account of a grave condition of the woman from diabetes. The child, who died twenty-four hours after birth, presented 1.2 per cent of sugar in the urine. In the mother, who died two hours before, the glycemia had dropped from 0.41 to 0.18 per cent, while the azotemia had risen from 0.03 to 0.18 per cent. Necropsy of the mother showed characteristic lesions of nephritis, and degeneration of Langerhans' islands, but normal ducts and lobules. Identical lesions of the kidneys were found in the infant, also hypertrophy of Langerhans' islands, and changes in the lobules. In a case of acute nephritis with azotemia, in a pregnant woman, the microscopic findings in the still-born child confirmed an acute nephritis.



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For children and adults follow the same method, but in the proportion of one-half teaspoonful of gelatine to a glass of milk.

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KENTUCKY MEDICAL JOURNAL



Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

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No. 4

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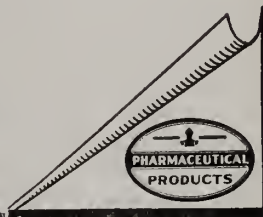
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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXIII.

BOWLING GREEN, KY., APRIL, 1925

No. 4

EDITORIAL

WAS THIS WRITTEN FROM YOUR COUNTY?

This good letter from a county health officer was received by the State Health Officer recently. It affords a great deal of food for thought. Please read it carefully and thoughtfully and ask this question, are you playing fair with your county health officer? Most of our physicians in most counties are. Are you?

I am still unable to say definitely how many cases we have had here since the first of the year. Some of the doctors have been calling their cases "chicken-pox," and others have said they "don't know" what it is, and NONE of them have reported any cases to me as county Health Officer, excepting Dr.— and he reported that he had one case—and that was himself. He wanted me to come see him. I have had only four cases and they are still sick and quarantined. Some of the other cases do not seem to feel they have to remain within doors.

We have had some unpleasantness here due to fool jealousy over vaccination fees. Also there has been some conflict between members of the Board due to misunderstanding of the duties of the individual members. While I have never so expressed myself to them, I feel that there is only ONE Health Officer in each county, and that the other members of the Board are his counsellors and assistants, and his protectors in cases of questionable decisions to be made, but the men on our Board, and all the other doctors in this county, seem to believe it is their right and duty to close schools, quarantine anything, report nothing, and run things as they think expedient. When somebody, with reasonable intelligence, comes to my office for information, I do know what has been done, nor what should be done. Just a few days ago somebody asked me if Dr. — wasn't allowing his case of Small-pox to ship milk. I did not know, and do not yet know. I would like to protect people whom I should protect from

infection, but when the doctors take things into their own hands and make no report to the Health Officer, what can he do? It seems to me that the Doctors would be glad to report their "health" troubles to the Health Officer, and thereby avoid shouldering worry and responsibility themselves, but they do not seem to understand that that is what he is for. If this board will elect someone Secretary in my place, I will certainly show him how quickly I will report my cases to him of this character, and let him have the job of inspecting and enforcing. There is no pleasure in it for me I'll tell the world.

But I started out to tell you how many cases of small-pox we probably have had in 1925 and instead have written a hymn book, told some tales out of school, and gossiped in general. We have had approximately fifteen cases as nearly as I can determine, several of which are still sick. We have vaccinated pretty thoroughly around the county seat and have required it in the school. Other sections of the county have been doing a little vaccinating. Sentiment is none too favorable to vaccination.

I was in the great epidemic in Breathitt County in 1913, and saw several hundred cases, and the doctors and I have disagreed here in one case. Two doctors said she didn't have small-pox. I said she had—vaccinated her and her family, and put them under quarantine and stopped her from high school over their protest. A week later four of her family went down with small-pox, her father with the confluent type. Her vaccination didn't take. The rest did but not in time.

This Board and the public here need a little earload of real reliable information Dr.— has been telling his patients that vaccination holds for a lifetime. Such bunk! If it were not so serious it would be ridiculous. He knows better than that himself."

THE LAST OF THE ROMANS

So far as Kentucky is concerned, for the first time in its history there is no Rodman practicing in the State. We have had no other family which has given more to Kentucky medicine. Franklin, Nelson, Larue,

Jefferson and Daviess Counties have each gratefully accepted the services and leadership of members of this family.

Dr. J. J. Rodman, of Owensboro, was the last of the Mohicans and was one of the most noteworthy of the stock. Dr. Rodman was a family physician and was one of the best examples of that greatest classification of our profession. For twenty-five years he had been the secretary of the Daviess County Medical Society and the JOURNAL feels that it can say without invidious distinction that he was among the best ten county secretaries in the United States. He did not know how to neglect a duty.

The profession of Kentucky shares with our brethren in Daviess County their sorrow at the loss of this good and great man.

DOCTOR LEDERMAN

Dr. I. A. Lederman, one of the leaders among the group of physicians limiting their practice to diseases of the eye, ear, nose and throat, died at his home in Louisville on February 7.

Dr. Lederman was one of the most successful practitioners in the State. He gave himself completely to his work. Modest and unassuming, he had an enormous capacity for service. His loss will be felt by physicians and people in all parts of the State.

The JOURNAL shares with his family and the profession of Louisville in the sorrow at his loss.

THE CHICAGO CONFERENCE

The mid-winter conference under the auspices of the American Medical Association in Chicago considered many of the problems of medical education—the distribution of physicians, hospitals, and the health education of the public.

The first day was devoted to reports of progress in medical education in the past twenty-five years. These reports covered especially the subject of anatomy, physiology, pathology and clinical medicine. The reporters made practically the same statements in regard to each, namely, that twenty-five years ago there was very little or no real medical education, that these several departments had been increased in their financial resources and personnel from four hundred to several thousand per cent and that when the resources of each of them were further increased so that they could secure large additional all-time personnel they would be able to develop a really effective system of medical education.

It seemed that the purpose of this program was to build up a defensive against the powerful appeal which Dr. William A. Pusey, the president of the American Medical Association, made on the second day for more attention to education in the art of medicine and less to education in pure science and the specialties. While Dr. Pusey's proposals were received with practically the unanimous opposition of the medical educators present at the meeting, his illuminating address sounded a keynote that cannot be disregarded. Reform in medical education must come and it will only come when the profession voices its demand for it in no uncertain terms. In this whole matter Dr. Pusey is showing himself the worthy descendant of ancestors who helped to blaze the Wilderness Trail and develop Kentucky and the West.

THE HEALTH OFFICERS CONFERENCE

The Annual Conference of County and City Health Officers will be held in the State Board of Health Building at Louisville the week beginning April 13. The program this year will be devoted entirely to the health officers, the public health nursing meeting having been postponed until the meeting of the National Hospital Conference in Louisville in October.

Dr. Blackerby has arranged for the Health Officers Conference a practical post-graduate week which will mark an epoch in public health and medical work in Kentucky. Arrangements have practically been completed by the State Board of Health for the correspondence post-graduate course for the health officers of the State which will begin at this meeting and which no health officer, especially, can afford to miss. Members of city and county boards of health and other physicians are cordially invited to attend and take part in the meeting.

The entire session will be thoroughly practical and informal, and based on the results of similar conferences in Ohio, Pennsylvania, Texas and other progressive states, we can predict that those who attend will be more than repaid for the time they spend at this meeting and in the follow-up work which it will develop.

TO OUR MEMBERS

This will be the last issue of the JOURNAL that will reach you unless you have paid your dues to your County Secretary and he has sent them in to the office by April 1.

The Secretary of the American Medical Association has notified all the states that the apportionment for the next three years of delegates to the parent organization will be made on the basis of membership on April 1. Our report will leave for Chicago on the 10. We know that practically every reader of the JOURNAL will be in good standing within a month or two, anyway, and we are writing this urgent message that you may get in now so as to help with our standing in relation to the other state organizations.

There was never a time in the history of the Association that as many and as complicated problems confronted organized medicine. It therefore behooves us to be closely organized that we may accomplish the best results for the protection of the health and lives of the people who are dependent upon us.

MAY DAY IS CHILD HEALTH DAY

The American Child Health Association, of which Mr. Herbert Hoover is President, has set aside May 1 as Child Health Day. President Coolidge has given his approval of such an effort, and in a letter to Mr. Hoover, wishing every success to the plan, said, "It will focus the thought of the country on constructive measures for improving and safeguarding the health and welfare of our nation's children on May Day, the traditional outdoor day for children."

Mr. Hoover, in his May Day message said: "The ideal to which we should strive is that there should be no child in America who—

Is not born under proper conditions.

Does not live in hygienic surroundings.

Ever suffers from malnutrition.

Does not have an opportunity for outdoor play.

Does not have prompt and efficient medical inspection and attention.

Does not receive primary instruction in the elements of hygiene and health."

An extensive May Day program is being arranged in Kentucky through the State Board of Health and Dr. Annie S. Veech, who is Chairman for Kentucky. Chairmen have been appointed in each county. The women's and men's organizations will have speakers on Child Health during May Day week, the stores will advertise and display articles used by children, the grocery stores will stress proper foods for children, the movies will have appropriate films, in many communities child health parades and plays

will be given by children and WHAS broadcasting station will have a program on Child Health on May Day. Physicians will be asked to speak on Child Health, emphasizing the ways of bringing better health to children. In various communities the need may be pure water or clean milk, school inspection, regular weighing and measuring of children or the value of the health nurse; but, whatever the outstanding need for better child health may be, the physicians of the State have an opportunity on Child Health Day to serve children by bringing these needs to the attention of the public. The attaining and maintaining of child health is a community responsibility and the doctors should and will lead the way.

ORIGINAL ARTICLES

CONCERNING THE FERMENTATION TEST FOR THE QUANTITATIVE DETERMINATION OF SUGAR IN THE URINE.

By M. Y. MARSHALL, Henderson.

Due to the fact that practically all of the standard laboratory manuals and text-books on clinical diagnosis endorse the fermentation test as being a rather reliable and accurate procedure for the quantitative determination of glucose in the urine, I feel sure that a large number of our practitioners and smaller laboratories are using this test and placing reliance in the results obtained. The following series of simple experiments demonstrate conclusively, I believe, that the test, as a quantitative test, is extremely unsatisfactory, unreliable, and inaccurate.

Webster says that carbon dioxide is evolved quantitatively from glucose by the action of yeast, and that the most convenient method of applying the test is to use an Einhorn fermentation tube, which is graduated so that the amount of carbon dioxide evolved is directly read off in terms of per cent of glucose. He does state that certain precautions must be observed, but then leaves the reader with the impression that if he observes these precautions, the test is satisfactory. Todd states that the fermentation test is convenient and satisfactory, providing it is properly controlled. Faught states that by measuring the amount of carbon dioxide evolved in the fermentation process, we are enabled to estimate the percentage and amount of sugar contained in the specimen under examination. Stitt mentions the fermentation

test, as a quantitative reaction, only in connection with the Roberts test, which depends upon the difference in specific gravity between unfermented and fermented urine, which test I am not at present discussing. Emerson mentions certain factors to be controlled, and then states that it is possible to control well all these factors, and that he has seen excellent results with it. Caille infers, although he does not exactly state, that when certain disturbing factors, which we shall consider more in detail presently have been properly controlled, the test is reliable. Folin alone condemns the test and says that it is now seldom used except among physicians who have not the facilities for making other tests.

Now let us see what the sources of error mentioned above are, and what factors must be controlled. The yeast must be active, and not self-fermenting. The amount of yeast used must be adequate. The urine must be faintly acid, both because this is the most favorable reaction for the growth of the yeast, and because if alkaline, ammonia formed from an ammoniacal fermentation will disturb the result. The temperature must be favorable for growth of the yeast and the urine must not contain more than 1 per cent of glucose. These factors were all carefully controlled in the following experiments:

EXPERIMENTS.

Three apparently identical (see Exp. 15) Einhorn fermentation tubes, graduated in both cubic centimeters and per cent, were used, one filled with normal urine and yeast to test for self-fermentation of the yeast, and the other two, permanently labelled No. 1 and No. 2, to contain the urine to be fermented. Only fresh yeast was used, also normally acid urines, and the tubes were allowed to stand at a temperature of approximately 20 degrees C. For the sake of brevity, the control tube will receive no further mention. The fifteen curves presented show the results of each experiment in graphic form, set forth the conditions of the experiments, and the main points shown by the fermentation curves. Experiments I-IV inclusive were performed with diabetic urines, the urine in tubes I being undiluted, that in tube II diluted 1-1 with distilled water. If the test is reliable the percentage of glucose shown by tube II should be 1-2 that shown by tube I. As a matter of fact the percentage varied from 21 per cent to 58 per cent, a percentage of error sufficient to condemn the test for even rough clinical purposes. Thinking that perhaps the average low fermentation shown by the diluted urines might be due to a deleterious effect of the distilled water on the yeast, in experiments V, VI, and VII tap

water and normal salt solutions were used as diluents. These show that the urines diluted with distilled water yielded more gas than those diluted with either tap water or normal salt solution. Noting that in these last three experiments the larger amount of gas was always obtained in tube I, Exp. VIII was performed with exactly the same fluid in both tubes, and tube I still showed slightly more gas. Experiments IX to XII inclusive were performed with an accurately prepared fresh 1 per cent solution of glucose in distilled water, 20 cc of this being first mixed with the yeast and divided between the two tubes, 10 cc in each. The same difference between the gas obtained in tube I and tube II shows in all the experiments, except No. IX, in which tube II gave almost twice as much gas as tube I. The difference, however, is not at all constant, the percentage of gas shown in tube II, as compared with that in tube I, varying from 45 per cent in Exp. XI, to 175 per cent in Exp. IX. This shows the impossibility of standardizing any particular tube; and also that the small differences in manufacture of the tubes are unimportant as compared with the inherent inaccuracy of the test itself. Also the percentage of glucose, as shown by the test, fermented from an accurate 1 per cent solution, varied from 0.25 per cent to 0.7 per cent. Again noting the general low average of the percentages, in Exp. XIV sugar free urine was used to make the 1 per cent glucose solution. One tube did, in fact, show a percentage of almost 1.0 but the other fell to 0.3, so that evidently the trouble was not with the diluent. In order to determine what was the difference in the two tubes that almost uniformly produced a lower result with the same fluid in tube II, the graduations on the tubes were measured and found approximately correct; the contents of the closed arm was measured and Tube I was found to contain 8.5 cc, while Tube II contained only 5.8 cc. This produced a difference of the fluid level in the open bulbs of 5 mm. Thinking that perhaps a quicker reabsorption of the CO_2 formed, due to the excess in pressure in the closed arm of tube II, was responsible, the pressure conditions were reversed in Exp. XIV, but the result was the same as before. The difference therefore, is probably due to the fact that the closed arm of tube I holds more fluid than that of tube II. The important point, however, is that this difference is not at all constant, due to the inherent unreliability of the test itself.

Lastly, it is to be noted in all the experiments that the fermentation proceeds is a more or less regular curve, which reaches a

peak and then declines, probably due to re-absorption of the gas formed. The peak, which represents the maximum fermentation, however, is not always at the same place, occurring anywhere from the 7th to the 24th hour. Even assuming that the test is otherwise accurate, if a reading were taken at the end of 24 hours as is advised by all the textbooks, in the case of such a specimen as No. 1V, a percentage of 0.6 would be read as about 0.2.

CONCLUSION

The fermentation of sugar by means of yeast depends upon biologic processes which are too complicated to be susceptible of accurate quantitative control, and the test for the quantitative determination of sugar in the urine by this means is wholly inaccurate and unreliable, even for rough clinical purposes.

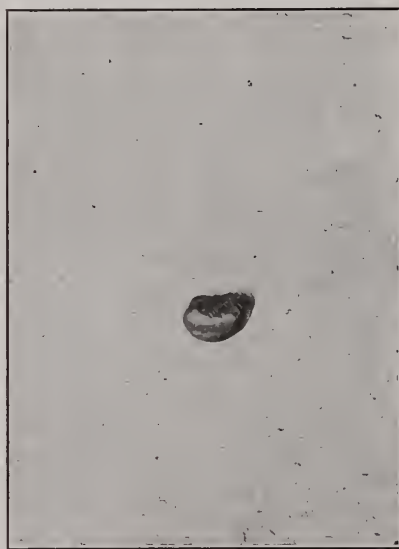
REPORT OF A CASE OF A COW PEA— SOMETIMES CALLED WHIP-POOR- WILL PEA—IN THE RIGHT BRON- CHUS OF A CHILD ELEVEN MONTHS OLD REMOVED WITH THE BRONCHO- SCOPE THROUGH THE MOUTH.*

By C. E. PURCELL, Paducah.

On September 15, 1923, Dr. E. R. Goodloe of this city telephoned me that he felt certain that he had a case of foreign body in the right lung. He said he based his opinion on the fact that there was no air going into the right lung on inspiration; coupled with the fact that the parents said the child was perfectly well until it had a violent fit of coughing. The previous day, the child in playing on the floor placed several cow peas in its mouth, this initial fit of coughing followed. Up to the time when he called me about 4:00 p.m. there were intermittent spells of coughing attended with very difficult breathing. Dr. Goodloe was consulted in the afternoon of September 15, shortly before he called me.

HISTORY: The parents brought the child to the office at once at my suggestion. At this particular time there appeared to be very little wrong with the child. I made no attempt, whatever, at an examination because Dr. Goodloe had already told me the condition of the child's lung. The mother stated that the child was playing on the floor and found some cow peas she was hulling and put the pea in its mouth. Suddenly she

noticed the child had a violent spell of coughing, also difficulty in breathing. The child had intermittent spells of coughing and difficult breathing, until she became alarmed and called Dr. Goodloe. The mother also described the kind and size of pea she thought the child had "swallowed." I was especially anxious to get information on this point so I would be able to study the best method of removal. We knew that a pea of this character would not show in an X-Ray picture, so therefore, we did not advise the parents to have the child X-Rayed, but accordingly sent it to the Hospital for observation and arranged to do a bronchoscopy. Operation at 8:00 p.m. with Drs. E. R. Goodloe, and Virgil Powell present, I passed the bronchoscope without difficulty. The pea was immediately found and readily removed. There was not a drop of blood lost during the procedure and the child left the Hospital the following morning in perfect condition. The fact that there was no post operative complication, shows that there was no traumatism during the bronchoscopy.



Pea Removed from Right Bronchus of Child 11 months.

COMMENT: Each foreign body has its own peculiar and distinctive feature. It is rather unusual to have so young a child with this character of foreign body in a bronchus. The parents of the child owe Dr. Goodloe a lasting debt of gratitude for his prompt action in the case; likewise Dr. Goodloe is to be commended for avoiding doing a lot of unnecessary things, chief of which, is not keeping the child under observation until serious complications arose. Second: On deciding on the only logical course to pursue, i.e., that in place of hasty, heedless, uncertain exploration

*Read before the McCracken County Medical Society.

he advised bronchoscopic and did not traumatise the child's throat, either with instruments or fingers in a useless attempt to make a diagnosis. The history of the case in itself left no room for doubt.

Photograph of a cow pea lodged in the right bronchus of a child, age eleven months. Removed through the mouth on September 15, 1923. Photograph shows dents on the pea, which were caused by the serrations of the grasping forcep. Notice that these serrations were not deep enough to rupture the capsule or hull of the pea. The grasp was sufficient for safe removal.

A DISSECTION OF THE CLARK COUNTY MEDICAL SOCIETY MEMBERS —MOSTLY THEIR FAULTS.*

By S. J. ROSE, Winchester.

The writer has been practicing medicine in Winchester, Ky., since his separation from the U. S. Army in 1919. Since that and during that time he has had occasions and opportunities to observe the activities of the various members of his incomparable colleagues. Allow him to state that as a group or singly there never was a group of physicians that could in any way approach them morally, mentally, ethically, etc., ad finitum. They may have faults as most human beings have but their virtues so far overshadow the faults as to make any faults they may possess a negligible quantity.

At this present meeting the writer steps out as their president and allow him to attempt to express in his humble way his heartfelt appreciation of the loyal support given him during the past year in his feeble effort to make Clark County and its great physicians stand out head and shoulders above all other county societies in the state of Kentucky. If he has succeeded it is due to no special effort of his own but to the men who are here tonight. If he has failed it is his failure and his alone.

Many things have been said about each of us—some favorable and some unfavorable not only by the laity but also by our own selves.

To digress from criticism of ourselves by ourselves—the latter gross breach of ethics—it reminds the writer of the following and which dialogue would run about as follows: "I saw Smith today and his trousers were not creased, he was bow-legged, his hat needed cleaning, etc." That is how each of us have heard of our selves in a professional way

which might run about like this: "Doctor So and So failed to get all the tonsils, Doctor Jones left a pair sheep shearers is a man's belly, Doctor Doe failed to take a stitch in the perineum, Doctor Elsewhere should have his hair cut, Doctor Killum failed when I could have saved the patient, Doctor I-Know-It-All said the fracture should have been plated when Doctor Nut put on a Buck's Extension, Doctor I'll Tell'em said he would not attend a medical meeting until a certain physician was no longer president, Doctor Grab Them refers a patient to another physician and then back tracks and tells the family the condition has subsided but it would have done so any way without any treatment, Doctor I-Am-Meek makes a fine flock of complimentary remarks in the presence of the consulting physician and then after the consultant leaves he slips back and retracts it all to the family, Doctor I'm Starving blames it all on fate and cannot see why he is poor and the Chiropractor is apparently not, Doctor Politician believes the right path is to bring medical cases before a non-medical social club in order to impress upon them the great amount of charity work he is doing, Doctor Boss said he had a group and all others were as to him the same as the invisible and infiltrable virus as they have not even approached the status of human beings, much less doctors."

None of us want to be president and all of us in that and some other respects are plain liars. Every one else says the other fellow is a whiskey soak, a dope fiend, and an abortionist and at the same time said speaker never fails to impress the laity to whom most of this talk is delivered that he, the doctor speaking is the Eminence of Self-Sufficiency and Sang Hroid and a special appointment of Human Destinies. His work and his alone so he says, is the perfection personified.

Therefore, since each of us admit that we alone are perfect and all the rest of us are mere non-descripts why not "shake out of it" to use the vernacular, be ethical in realty as well as in other ways? Why not discontinue the perfect imitation of back-yard gossips, get our heads working and help each other instead of keeping all our expert knowledge to ourselves?

Let's stop regarding our colleagues as reference bureaus in order that our offices should be filled with patients that came to him instead of us, get the old chip off the shoulder. In short, get the motto: "Let's go make Clark County in 1923 the only perfect medical society in the state of Kentucky."

Other societies please take notice—we know we have faults and admit them—you have them but will not, therefore keep your eye on

*Read before the Clark County Medical Society

Clark County if winners can attract you. From the present date we have our own number and have yours also. The lessons we can and will give you will be worth while.

THE SUNNY SOUTHLAND.*

By J. H. HENDREN, Pineville.

When the program committee of this Society gave me the subject of "Hay Fever" they evidently thought they were handing me the Joker. And I think they did. Personally I don't know a thing in the world about hay fever, and I don't believe anybody else does. So I am going to junk "Hay Fever" and write about something that I do know something about. In short, I am going to discard the joker and draw to a pair of nines.

Man is a social animal. He likes to move in droves and tribes and crowds. And whenever a collection of fellows get together, the conversation soon drifts to a common subject. Lawyers talk law, ministers talk scripture and doctors talk medicine. Possibly ninety per cent of the papers read in the Medical Societies of this State deal primarily with medical subjects. I offer no apologies, however, for cutting loose from the time worn custom and discussing something new, for I believe a little change will do us all good, even if it isn't in the pocketbook.

An all wise Providence has divided the day into three periods: eight hours' work, eight hours' sleep, and eight hours' play. The average doctor, however, has sixteen hours work and eight hours' sleep, (sometimes). When he does get a little play, he is compelled to leave the scene of his labors and spend a week or two trying to enjoy a hard earned vacation. When a man chains himself to a thermometer, he is just as much a slave as the old time galley slave chained to an oar. Our Creator has wondrously clothed this old world with marvelous scenic beauty; its ours to enjoy and if we don't enjoy it, its our own fault.

Along about the first of January, the company I was working for blew up like a stick of dynamite, and I landed with a dull thud. I told the madman we had better skin out, and we did. We decided to go to Florida for a spell, and to take our own camping, cooking and traveling outfit with us. In short we were going to furnish our own hotels and railroads on this trip. I didn't have any business to attend to, but I did have a few arrangements to make, so on the sixth of February at about 4 p.m., in a blinding snowstorm we stole away from Pineville on the long, long road

to the Sunny Southland. The party consisted of four people; my wife, my daughter, age seventeen, my wife's brother, age twenty-two and myself. We used a five passenger, 1923 Chandler car, and had a fifteen hundred pound load, including passengers.

Our first stop was at Cumberland Gap, twenty miles away. I wanted to see a party there, hence the late start and short run. The following day we passed through Tazewell, Knoxville, Clinton, Oliver Springs, to Harriman for the night. This was neither the best route nor the shortest, but we had reasons for taking it. The next morning we got a late start. The day was bitter cold, but the sun was shining bright, which meant much. Every cloud has a silver lining, if we can only turn them inside out, and the bitter cold weather had made the mud roads as hard as concrete. Rockwood, Dayton, Soddy, Chattanooga, Ringold, all fell behind us and we arrived at Dalton, Georgia, about three thirty p. m.,—125 miles. The daughter had developed some temperature and a sore throat which might develop a tonsillitis, so we decided to get a little dope and hole up for the night. When we registered from Pineville, we found that the proprietor was a Mr. Lyons, formerly from Harlan, he was more than exceedingly nice to us. The next day was better. The weather was warmer and the Georgia roads were fine compared to Tennessee. Cartersville, Marietta, Atlanta, Perry were passed and we rolled off one hundred and seventy-following morning being Sunday, we did not hit the trail until about 8:30. Arriving on the outskirts of Macon we inquired at a garage the best road through town. While discussing the matter, a young man, about twenty, said he would drive us through for fifty cents. The garage man said he was reliable, so we told him to take the wheel. We plied him with questions on the way, and queried among other things, "What is the principle occupation of the people in this town?" "Selling stump," he promptly replied. "Stump, what's that?" I asked. "Moonshine." I had heard it called everything but stump. That was a new word in my vocabulary. We made Tifton that night, and stopped at the Hotel Myon, one hundred and sixty-six miles for the days run.

The following day, was much better, weather fine, roads fine, everybody feeling fine, and we rolled off one hundred and seventy-eight miles to Gainesville, Florida, before sundown, notwithstanding the fact that we had nineteen miles of mean sandy detour, and the only puncture of the whole trip to detain us. We spent the night at the White House Hotel, our last for the trip. The next morning

*Read before the Bell County Medical Society.

we drove seven miles out to Lake Neuman to rest up and fish a few days. Friends in Gainesville had arranged a three room summer cottage on the lake shore, and we were very nicely fixed.

Lake Neuman is seven miles long and four miles wide, a beautiful body of water and full of fish. Fishermen along the shore furnished boats, motorboats, and bait at a very nominal sum, and we did the rest. Gainesville is quite a town. It is the seat of the University of Florida, which has large beautiful grounds. One afternoon we drove out to "Paynes Pararie." Paynes Pararie was at one time a large lake, some eight or nine miles in diameter. Some thirty years ago or more its waters found a subterranean outlet, and left the lake bottom high and dry. This vast area of some twenty thousand acres, as level as a floor, soon was covered with luxuriant vegetation, and it is today one of the finest pasture ranges of its kind in the United State. We spent a full week in and around Gainesville, the longest stop of the entire trip.

Our next stop was at Ocala. A beautiful town about the size of Pineville, but the most interesting thing we saw there was the Silver Spring, six miles out of town. A very large fresh water spring, about four acres in extent, and flowing nearly a half million gallons of crystal clear water every minute. You view this marvel of nature through glass bottom boats, and the water is so clear that you can see a pop bottle cap eighty-five feet below the surface. The spring is alive with many kinds of fish, and one never tires of watching them in their native haunts. We saw several large mouth bass which must have weighed from eight to twelve pounds. This spring is the head of the Oclewaha River, and steamboats make daily trips to Jacksonville.

From Ocala we struck for the west coast of Florida. Through Dunnellon, Holden, Iverness, Brownsville to Dade City, for the next stop. On this trip we saw the original Florida. Acres and acres, and miles and miles of swamps and pines and cypress, and saw palmetto and live oaks and sand, and everything else but human habitations.

Once, after driving several miles, without seeing a single sign of civilization, a big white rooster walked out in the road and looked us over. We felt sure we would see some one, but after driving some ten miles more of the same thing, we concluded that he was a "Furriner in them parts."

Here too, we passed the phosphate mines, which is loaded into gons by a huge steam shovel and shipped by rail to Tampa.

From Dade City we went by Plant City to

Tampa. Tampa is the metropolis of the west coast. Situated on the Tampa Bay, with fine shipping facilities, both rail and water, makes it an important point. It has a municipal tourists camp, having turned beautiful ten acre DeSoto Park into one. While we were there about four hundred cars were in the park, but earlier in the season there had been as many as six hundred and eighty cars camping there at one time.

Many interesting things attract the tourist in Tampa. The Gandy Bridge, Sulphur Springs, Alligator Farm, parks and Ballast Point are all worth your time. Boating and fishing aplenty, for those who care for the sport. We went from Tampa to St. Petersburg by steamboat across the bay, leaving our car and tents in camp at DeSoto Park. This was a delightful twenty-five mile boat trip, well worth the price, one dollar for the round trip, 50 miles.

The day spent in St. Petersburg was a delightful one, and St. Pete seems entitled to her slogan, "The Sunshine City." While walking down a crowded thoroughfare we met Mrs. M. J. Moss, Mrs. Ray Moss and Mrs. D. B. Logan, all of Pineville, and a few moments later Judge M. J. Moss, all of whom were wintering in St. Petersburg. Judge seemed as tickled to see somebody from home as a small boy on Christmas morning. These were the only people we met on the entire trip whom we knew beforehand. After a good dinner we drove all over the town in a taxi. We told the driver we wanted to see the town, and he sure did show it to us and tell us about it too. St. Petersburg is at the present time about fifty miles from Tampa, but when the wonderful Gandy Bridge is finished it will be only about twenty miles. In the late afternoon we returned by boat to Tampa, having spent one of the most pleasant and delightful days of the whole trip.

From Tampa it was our intention to go south to Sarasota and Fort Myers, but the road was under construction down there and tourists reported several nasty detours, so we turned our faces eastward to our next stop, Lakeland. Lakeland is one of the best towns in Florida, and one of the very few which does not depend upon the tourists for support. In the center of the citrus and strawberry belt, with several packing houses and canning factories, it is able to take care of itself. Its buildings are of brick and concrete, and not the everlasting shiplaster type so common elsewhere.

Here we saw great truck loads of oranges and grape fruit hauled in from the neighboring orchards, washed, picked, assorted, wrapped and packed for the market. Here also

we saw grapefruit canned, something we never heard of before. Here, too, we saw strawberries loaded for the northern market. We spent four days in Lakeland and hated to leave, but tempus was fugiting and we had to move. Eastward through Lake Alfred, Haines City, Davvenport, Kissimmee, Orlando to Johnson's fishing camp near Winter Garden on the southern shore of Lake Apopka, and eighteen miles west of Orlando. Believe me, it is some place. Lake Apopka is the second largest lake in Florida, being twenty-five miles long and twelve miles broad, and is alive with fish. Many fishing camps dot its shores, maintained as private enterprises for the benefit of the sportsmen. Boats and guides can be rented, bait bought, and all things furnished, for a nominal sum. Also many private cottages, private boats and launches along the shore make this body of water a fisherman's paradise. After two days at this place we were ready to leave, and our next stop was at Monte Verde, on the opposite side of the lake. To me, Monte Verde is one of the most interesting spots in Florida. It is not an incorporated town, merely a village, yet it has a college of some three hundred pupils. It is the highest town in Florida, being some thirty feet above sea level. It also has a number of artesian wells, which was the best drinking water we found in the state. Where this water gets its pressure is a mystery to me. It must come from somewhere far up in Georgia. The President of the school is Professor H. P. Carpenter, formerly of Winchester, and he seemed glad to see somebody from so near the old home towns. As I came from Richmond, we knew many folks in common. Here we received a big batch of mail, the first news we had had from home. Our next stop was Orlando, arriving on Saturday at noon. On Saturday night it rained and rained, and all Sunday it would rain awhile and then it would pour. Then the wind would try its hand. It seemed to be a dispute between the rain and the wind, instead of the wind and the sun. Rain is the one sore spot of the tourists campers life, but our tents failed to leak a drop and we fared very well. The weather prevented us from seeing very much of Orlando, so we will reserve it for our next trip.

From Orlando, we drifted southward through Kissimmee, and eastward through St. Cloud and Deer Park to Melbourn on the east coast. The drive from Kissimmee to Deer Park is one of the most beautiful in Florida. Swamps and pine forests and lakes and untamed nature on both sides of an eighteen foot asphalt drive, fifty-eight miles long, makes it unique to say the least. Just

east of Deer Park we crossed Lake Washington on a seven mile ear ferry. You run your auto upon a flat ear, cut off the gas, rear back and enjoy the aqueous scenery for seven long, wet miles. We spent the night at Melbourn, in one of the best tourist's camps we found in the State, and the next morning set out for West Palm Beach. Not until this time did we begin to see the real tropical Florida. Cocoanuts and cocoanut palms, pineapples, tropical pawpaws, different kinds of palms all speak a change. The climate too showed marked improvement and we felt more than ever that we were in the Sunny Southland. We camped for a few days at Palm Beach. Palm Beach is the most beautiful town in Florida, and is more like a fairy land than Palm Beach is the most beautiful town in Florida, and is more like a fairy land than a city. The home of many millionaires, no expense has been spared to make it an earthly paradise, and they have succeeded. The ocean view is more beautiful here than any other place we saw it, and the bathing beach is better than either Miami or Daytona. The three days spent here were more like a dream in a fairy land than anything else. While at West Palm Beach we had an opportunity to try out one of those tropical pawpaws, which are supposed to taste like a cantaloupe. I divided liberally with my friends, and after I had tasted by portion, I was sorry that I had not been even more liberal. We turned our noses southward again, through Delray, Ft. Lauderdale, Hollywood and a dozen other places, over asphalt roads as smooth as glass and as level as a dancing floor, we reached the wonder city of Florida—Miami. To tell you about Miami would require a paper as long as this one, and after I had finished you would say that I was one big imaginative liar. Briefly, Florida is the playground of the nation, and Miami is the Coney Island of Florida. There is something doing every moment of the twenty-four hours. The bathing beach, the band concerts, the big hotels, ocean fishing, dog races, horse races, golf, polo, and ball games, aviation school, motorboat, yacht, airplane and sailing races, Hy-a Leah, Coral Gables, Seminole village, alligator farm, aquarium, cocoanut grove, Deering estate, W. J. Bryan's estate, Bryans Sunday School, ocean drives, Biscayne Park, Sunny Isle Casino, real estate auctions, the Natural Bridge at Arch Creek, tent shows, fairs, parades and miles and miles of asphalt drives, with a dozen other things I don't remember now, makes a man pack up his troubles in the old kit bag and smile, smile, smile.

Unfortunately the streets of Miami are too narrow, and the traffic congestion there at

times is terrific. We spent four days in Miami and did not see the half of it. If you should take a trip down, allow at least ten days for Miami. On Sunday we decided to drive down to Royal Palm Park, seventy-five miles, but after driving thirty miles out, there was such an eternal sameness of scenery, that we returned. The next morning we got an early start, and begun the long twelve hundred mile drive home.

We drove one hundred and eighty-two miles that day, and stopped at Melbourne again for a day or so.

Melbourn, half way between Jacksonville and Miami, is one of the beauty spots of Florida for camping. The tourists camp, situated a few feet from Indian River, which is really an arm of the ocean, offers fine facilities for fishing and boating. A big concrete bathing pool, pavillion, and other things make it a stop worth while. The town itself is small and like most other towns. Would like to tell you more but time forbids. From Melbourn we drifted northward to Daytona. During our stay in Daytona it rained a disagreeable cold rain all the time, and we spent the two most miserable days of the whole trip. Drives around town up and down the beach, and trying to keep dry was our sum total of Daytona. Part of the roads from Melbourn to Daytona were miserable. They were the famous shell roads of Florida, of which we had heard so much. Shell roads were no doubt fine for horse drawn vehicles, but too soft for motor cars. The tourists call them "washboard roads." They ride about as easy as a railroad, with the rails removed, but ties in place. The Florida Highway Commission is fast replacing these old shell roads with asphalt and concrete. The furnished road is fine. One hundred foot right of way, with forty foot black top road in the center, level and straight, makes it a joy ride de luxe while it lasts.

Our last stop in the State was St. Augustine, the oldest town in the United States. From an historic standpoint, this was the most important stop of all. The old fort, now For Marion the old city gates, the oldest house, Ponce De Leon's Spring, Hotel Ponce De Leon, Governor's Mansion, Old Cemetery, Cathedral, Alligator Farm, beach, light house and slave market are all worth seeing. However, the Old Fort, Oldest House and De Leon's spring stand out above all the rest. We spent three days in St. Augustine and should have had six.

We had seen about all we went to see except Jacksonville. Two of the party had been to Jacksonville, and the others thought they had seen enough towns, so we decided to start the

long trip home from St. Augustine instead of Jacksonville.

Sunday morning early we loaded our belongings on Big Liz and turned her nose homeward, through Jacksonville, Lake City to Valdosta, Georgia. From Jacksonville to Lake City is the finest concrete road I ever saw. Thirty feet wide and forty-five miles long, level as a floor and straight as a string. A fellow could "shore strut his onions" on this road, if it wasn't for speed cops, who hold you down to twenty-five per, and its "Good morning, Judge" to the fellow who steps too heavy on the gas. We crossed again the famous Suwannee River, and drank it in (mentally) for ten minutes. We camped for the night at Valdosta, Ga., one hundred and seventy-six miles from St. Augustine. The next day we made Macon, one hundred and fifty-one miles. We left Macon about thirty next day and drove to Atlanta, ninety-three miles, for the night.

It was our intention to spend the following day sightseeing in Atlanta. At the supper table, someone said that they would much rather see Pineville than Atlanta, so we all agreed to leave Atlanta to its fate and hit the red clay trail for home. The next morning somebody mistook twenty-five minutes after three for a quarter after five, and we had breakfast before we knew the difference. We loaded our tents and belongings by the headlights of the car, and at twenty minutes to five we were out on the highway, and whizzed through Atlanta before the traffic cops awoke. Cartersville, Dalton, Chattanooga, Dayton, were passed, and just at sundown we rolled into Rockwood, Tennessee, two hundred and two miles, the longest days drive of the whole trip. Rockwood had no tourists camp, and it was too late to hunt one, so we stopped at the hotel for the night, the first time in seven weeks. Considerably refreshed the next morning, we started on the very last lap of our journey, one hundred and forty-eight miles to Pineville, where we arrived by five o'clock in the afternoon, tired and worn out, but happy.

For the benefit of those who would like to know, will say that a trip like this is not expensive. Four people, out fifty-three days, spent a little less than four hundred dollars, or about one hundred dollars per person, sum total, including everything. We used two hundred and thirty-three gallons of gas, total cost, sixty-five dollars, average twenty-five cents plus, highest, twenty-eight cents, Pineville, Ky., lowest twenty-one cents, Tampa, Florida. Seventy-five dollars of the above cost was spent in hotels going down, and could be eliminated by starting in warmer

weather. We traveled two thousand nine hundred and twenty-two miles in our own car, and three or four hundred more by boat, street car and taxi. The sight seeing taxis charge two dollars per hour, (except Miami) for five persons or less, (40c per person). The drivers are kind, careful and courteous, and possessed of a world of local information which is dispensed freely. In this way we saw many things we would have otherwise missed, or would not have known what they were if we had seen them.

We had very little car trouble, only one puncture for the entire trip. Brought back Kentucky air in four tubes, Florida air in one. We did have some battery trouble, however, due to long drives and overcharged battery. And right here I found that an overcharged battery was a darned sight more trouble and expense than an undercharged one. Many tourists, especially the "first timers" burn their lights while driving in the daytime, but this is troublesome and annoying. Most "old timers" have the garage man set back the third brush of the generator, so that the battery will charge at from four to six amperes on the dial. This is the best and most scientific procedure, and should be done before leaving home.

A great deal has been said and written about the exorbitant prices charged in Florida during the winter season. Of such we saw none. Fresh fruits and vegetables, sea food and fish, were much cheaper there than here. Canned goods and staple groceries about the same price. Gas and oil both cheaper. Restaurant charges about the same price, with more grub and better service than at home. The only thing that I saw out of all reason on the trip was real estate. When a man can pump a worthless swamp full of less worthless white sand and sell it at from \$500.00 to \$15,000.00 per fifty foot front, and get the money for it, that is going some. And don't you think they are not doing it. All my life I have been taught to believe that the pests of Florida were alligators, skeeters, lizards, and snakes. But all of these pale into innocuous desitude, when compared to the real Florida pest, the real estate agent. He certainly moves in a mysterious way, his wonders to perform. But that is another story.

The finished highways of Florida are fine. Brick and black top being in the big majority, with concrete coming strong. Due to highway construction, detours are numerous, but generally short and in fair condition. The Tamiami Trail, two hundred miles from Tampa southward to Fort Myers and Marco, thence across the Everglades, to Miami, to be finished in 1926, will be, when complete, one

of the wonder trails of America. A magnificent boulevard from Jacksonville to Miami, four hundred miles, has many broken places yet, which are fast being linked together, and ought to be finished in two years. In two or three years at the most, all the important points in the state will be linked up by paved highways, and Florida will reap a golden harvest from a capitalized climate.

Don't worry about a place to camp. Every cross roads village has its tourists camp, and some places three or four. The standard price is twenty-five cents per night per car, regardless of the number of passengers. And you will be amazed at the accommodations you get for twenty-five cents. Hot and cold water, hot and cold shower baths, electric lights, bathing pool, flush toilets, dancing, music, lectures, moving pictures vaudeville, laundry, cooking facilities and police protection, all for twenty-five cents per night per car. Of course, all camps do not have all of the facilities, but all camps have most of them. A grocery store, filling station and garage in one corner adds to your convenience.

In regard to license the Florida officials were extremely generous and lenient. We carried a 1924 license, and our limit of reciprocity was thirty days. We were in the state nearly sixty days and not a single official ever said one word to us about it. The tourists who did get into hot water, were the ones who tried to make their last year license last through their stay. If you happen to be in Florida on or after January 1, get your home state license as quickly as possible and avoid unnecessary trouble and expense.

Much also has been said about the illegal liquor traffic in Florida. We saw none of it. We saw but one drunk man on the entire trip, and he said he was from Kentucky. He was certainly upholding the state's reputation alright, although he had to lean against a sign post to do it. Don't believe everything the railway folders and land agents tell you about the Florida climate. It is wonderful alright, but it has its "off" days. Don't fill your trunk full of palm beach suits, straw hats, bathing suits, tennis shoes and B. V. D's. Ram a suit of heavy winter underwear down in one corner and also include a hunting suit, a good rain coat, rain hat and rubber boots. They will come in mighty handy if you stay any time. The land man will blandly smile, and tell you it doesn't rain much in Florida. Well, it doesn't it pours. A man can get wetter quicker and more of it in less time, in Florida than any other place in the world I reckon.

In conclusion, let me say, that this is a great trip, and if you possibly can take it you ought

to do so. You owe it to yourself, your family and your clientele. Man sees but little here below at best, and I know of no place you can see more for less money than a camping trip to The Nation's Playground—Sunny Florida.

MODERN DAY TREATMENT OF TUBERCULOSIS.*

By W. Z. JACKSON, Arlington.

Hygiene, which consists in ventilation and sunlight.

The room should be well ventilated, with all the sunlight that can possibly be given to it.

There should be no curtains to the windows, nor rugs on the floor. The dwelling should be on high grounds. In the coldest of weather the patient must sleep with windows open, air within the sleeping room should be identical the same as out of doors.

During the day the patient should spend as much time in open air as possible taking such exercise in moderation as the condition of their circulatory apparatus and temperature will allow.

All sputum from the patient should be expectorated in a spit cup, with the proper disinfectant solution in cups.

All secretion from the body should be disinfected and buried.

The room should be heated by fire place in preference to a stove.

The patient's clothing is an important consideration. The risk of chilling the body should never be taken. Wool of weight varied according to temperature should be worn next to the body both day and night.

As a sleeping dress use flannel pajamas or night gown reaching to the feet.

The open air treatment may be employed at home the same as in a sanitarium. Too much stress cannot be laid on open air treatment, and cleanliness for the body and clothes.

Climate is another important factor in tuberculosis. We should be very careful in advising our patients to change climates. I think it criminal to advise a patient a change of climate who has no means, nor no one to go and look after them, when they are not able to look after themselves. They are much better off at home.

The patient with a weak heart and frequent hemoptysis and neurasthemic subject should not be sent to high altitudes, they could be sent to Florida, Southern Georgia, and Southern California.

Patients with a good heart not too nervous,

no hemoptysis may be sent to a high altitude, preferably in the mountains of Colorado, New Mexico, and Arizona. Camp or tent life in the open air is preferred.

If a patient is able, a combined climatic and sanitarium treatment is an advantage, the principal advantage offered is due to a rigid system of hygiene under the close supervision of competent medical officers.

Every state should have a Tuberculosis Sanitarium to treat all charity cases, and those of moderate means.

Feeding—The diet should be both nutritious and generous, too close attention cannot be bestowed upon the feeding. Above all, when the remedies prescribed embarrass in the slightest degree the function of the stomach, they should be stopped. The food should consist mostly of milk, eggs, flesh, fish, and fowls, together with an abundance of fat, should be taken. The carbohydrates are needed but must be taken with care lest they derange the digestive function.

Drug Treatment—If they have no appetite and digestion is not good the following prescription is very good:

R

Ae. hydrochlor dil. \$SS

Tinct. nux vomica, T\$IISS

Tinct. card. comp. q s a d §IV

M—., Sig. Two teaspoonfuls in water before meals.

Every case should be individualized and treated on its own merits.

When the temperature is running at 100 degrees F., or above that, a complete rest in the recumbent posture until it shall have subsided. It is impossible to over estimate the value of rest in the active stages of pulmonary Tuberculosis. On the other hand when fever is absent or very slight, systematic physical exercise with a view to develop the respiratory muscles and increasing the vital power and resistance of the lung texture is of the utmost importance both in the prevention and cure of Tuberculosis. The proper use of the muscles in suitable cases easily share first honor, with diet and fresh air. When the fever cannot be controlled by rest, New Orleans Tuberculosis Clinic recommends 20 drops of tincture of iodine 3 times a day from 7 to 10 days, or until fever is controlled. I have in some cases completely controlled the fever with mixed infection phylaeogen injected from 1 to 3 cc. every 1 to 3 days until I had given 6 or 8 injections. For excessive high temperature cold or tepid sponging of the body at intervals from 1 to 3 hours according to the severity of the fever should be tried. Internal antipyretics are rarely advised. In case it cannot be controlled by the

*Read before the Carlisle County Medical Society.

cold or tepid sponging, occasionally phenacetin grains 2 to 5 with 1-2 gr. of citrate caffeine may be given. For night sweats atropin gr. 1-120 to 1-60 zinc oxide gr. 2 to 5. Sulphuric or galic acid. A sponging with equal parts of alcohol and belladonna.

If tubercular patients are syphilitic, mercury and salvarsan is indicated, cod liver oil, hypophosphites are recommended. 1 like best solgnatone or guyaia tonic. One teaspoon after meals, provided it does not disagree with the stomach. Every third day 3 grains of sodium cacodylate in the vein, about once a week 2 cc of solution of calcium chloride by vein. Artificial pneumothorax has given good results in some cases. Tuberculine has given me good results in selective cases. Cough catarrhal irritation of the upper air passages, often is quite annoying when attributed to it is best treated by inhalation of comp. tincture of benzoin and carbolic acid. For malaise, eucosote, alcohol, and chloroform, of equal parts. Spray the throat with menthol, camphors, guaiacal, and mineral oil.

For excessive cough where irritation is low down, caused by pleurisy or pleuritic adhesions, iodine and sinapisms may be used. The cough often demands codeine or morphine in moderate sized doses.

Consumptives do not tolerate cough mixture with syrups in them very well.

Diarrhoea—The most important factor in treatment of this symptom is restricted diet, alum, whey, mutton and chicken essence are of service.

Drugs—Bis subgallate, lead acetate, opium, thymol, salol, benzonaphthol. For hemoptysis, hyperdermic of morphine to assist in keeping the patient quiet and to limit cough and pituition.

Methods to increase the coagulability of the blood and decrease the bleeding time, include sodium chloride, blood serum, coagulose and coagulin. Normal horse serum is prepared in 10 cc syringes, ready for injections. Occasionally when in spite of the method suggested above hemoptysis persist and is uncontrollable, collapse of the lung by production of artificial pneumothorax is indicated. If the lung collapsed even partially collapsed, the bleeding will promptly cease.

A RARE COMPLICATION FOLLOWING TONSILLECTOMY, REPORT OF CASE OF PARALYSIS OF LARYNGEAL NERVE FOLLOWING THYROIDECTOMY.*

By R. H. COWLEY, BREC.

A boy, aged 21, with history of haemophilia, was operated under local anesthesia Monday, January 6. Two amponles of Park Davis Haemostatic serum were injected before and three tubes immediately after the operation. There was less than the ordinary local bleeding and the patient left the operating room with a perfectly dry throat. Six hours later he complained of fullness in the throat and examination showed the left tonsilar region bulging into the throat and dark purple. Evidently a tissue hemorrhage. There was no surface bleeding. Six C.C. of Merrills fibrogen were given at once and thereafter two cc every 2 hours till 24 in all were used. The swelling and discoloration spread slowly but steadily till in about 12 hours his breathing was nearly cut off and it became necessary to do a tracheotomy. By this time the neck was so swollen that he could not lie down and it was necessary to kneel in front of him and insert the tube with him sitting in a chair. The swelling was so extreme that the longest tube would only enter the trachea about an inch at first and later on would barely enter it. There was no bleeding from the tracheal wound but the swelling kept slowly increasing till the neck was almost level with the chin. His coughing and restlessness kept pulling the tube from the trachea. The reintroduction of the tube was at first very difficult but by using a long killian nasal speculum, using morphine liberally and cocaine locally we managed to get it in before it was too late. As time went on the wound became more firm and the tube could be replaced more easily.

After three days the bleeding started in the mouth and as it ran down into the trachea it clotted and stopped the tube so that it had to be removed often. The coughing and constant movements kept the bleeding going till the amount of blood lost necessitated transfusion. The father was on hand to supply the blood and a quart was introduced into the vein of the arm. From this time on the bleeding stopped, the swelling began to recede and at the end of the sixth day the breath began to pass through the mouth. On the morning of the seventh day mouth and nasal breathing was free and the tracheal tube was removed. We greatly feared that with such an amount of bleeding and the terrible conditions which made anything like surgical

cleanliness impossible we would have a bad infection. We accordingly gave on the first three days five C.C. of sterile milk by hypo each morning. Whether this had any effect it is of course impossible to tell, but at any rate there was no infection either in the throat or in the neck and during the whole time there was no odor from the mouth and only a slight odor from the tracheal wound. I shall be glad if some who read this report will write me and tell me where they think the bleeding came from. It doesn't seem to be an ordinary case of haemophilia for till the third day there was no surface bleeding. My own guess is that the needle used to introduce the novocaine punctured a small artery which did not bleed at first because of the adrenalin. After the effect of the adrenalin wore off it began to bleed very slowly and kept it up in spite of the large amount of haemostatics used till the transfusion finally stopped it. This is the only serious case of hemorrhage following tonsilectomy that I have had in ten years and certainly the most difficult case to handle that I have ever seen in my practice and I am immensely pleased to report that the boy has entirely recovered and seems no worse for his terrible experience.

Woman, aged 50, operated four years ago for goitre. Has had some difficulty in respiration ever since the operation. Has been to many doctors but no one found the cause of her difficulty. When I was called to see her, I found her unconscious, pulseless, and making an occasional effort at breathing. I knew nothing of the goitre operation but by chance one of her friends spoke of it as I entered the room. I knew at once that the trouble must be paralysis of the recurrent laryngeal nerve and made a rush for the hospital for the tracheotomy instruments. Fortunately we had been using the instruments on another case and they were all out and sterile. The nurse and I rushed back to the patient to find that she was still gasping occasionally. Her pulse was gone and the heart could not be heard with a stethoscope. However, as she was very thin the tube was quickly introduced and artificial respiration begun. She soon gasped but it was fifteen minutes before respiration was well established. The next day she could talk by holding her finger over the tube. Since she will probably have to wear the tube indefinitely I would like to have some one tell me if there is such a thing made as a tube with a valve in it which will permit the air to enter but closes when the air is expelled. If there isn't any such tube made, I shall invent one,

for otherwise she will always be compelled to put her finger over the opening when talking. So far as I know, there is no hope of her ever being able to inspire through the natural opening.

THE VALUE OF MEDICAL ORGANIZATION.*

In the beginning, I desire to express my profound appreciation of the distinction conferred upon me, by the House of Delegates, in electing me to the high office of President of our old and honorable organization. There is strong within me a great feeling of gratitude to my friends who made my election possible, but mingled with a sense of pride in this high honor there is the very humble conviction that my selection arises from your own graciousness rather than from any merit of mine. Upon occasions like the present it is customary to address you upon some topic of general interest, and having the future of our society at heart, I desire to give expression to a few thoughts upon the Purpose and Value of Medical Organization.

To those practitioners of medicine who frequently attend the meetings and participate in the activities of professional societies, a statement of the value of medical organization is unnecessary and superfluous; nevertheless we are confronted with the fact that only a part of the practicing physicians of today are members of medical societies. Surely the requirements for entrance to our own Kentucky State Medical Association are neither so exacting, nor the yearly dues so great as to exclude the many practitioners not now enrolled. If the Association and its component county societies are failing to attract members, we must acknowledge that the failure is due to the members themselves who make up the organizations, and who are dead to the value to be derived from active membership in medical organizations.

The Kentucky State Medical Association was organized in Frankfort in 1852 and the founders set forth their aims in the language of the preamble: "The objects contemplated by the Kentucky State Medical Society are:

1. The establishment and maintenance of union, harmony, and good government among its members, thereby promoting the character, interest, honor, and usefulness of the profession.

2. The cultivation and advancement of medical science and literature, by the collection, diffusion, interchange, preservation and

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general circulation of medical knowledge throughout the State."

It would seem to even the casual thinker that these objects of organization should appeal to every doctor in the state. This expression of a desire for mutual benefit and improvement evidences the highest ideal of altruism. There is no intimation of a desire for material gain but only the aspiration to the better serve humanity. So are the objects, for which the first State Society was organized, set forth in the preamble of the constitution adopted in 1852. These aims and purposes are solely mental, moral and social improvement, purely idealistic and free from any suggestion or taint of materialism or self interest.

The keener competition of the present day, especially in all business activity, has extended itself to our whole complex structure of social and economic life, and has crept into our own ranks in the form of a sinister commercialism, making this expression of the ideals of the past sound somewhat quixotic and bombastic.

We, of today, are wont to treat with an indulgent amusement the practitioners of bygone days and to smile at the spectacle of the gentlemen distinguished from their fellow citizens by the frock coat, high hat and gold headed cane which was almost the livery of office of the doctor of the "50's." But, if history and tradition may be trusted, the doctor with the gold headed cane attained an enviable position in his community; not only as the medical adviser, but also by virtue of high intellectual and moral attainments, he stood as a person commanding the respect and love of his fellow citizens in a manner and to a degree, which his twentieth century successor cannot attain and possibly does not aspire.

The medical practitioner of the "50's" was more broadly educated than many other members of his community. He was at home in the classics, a man of culture and of erudition. Three quarters of a century have passed since then, and we, of today, consider his medical knowledge as almost nil, but his ardor in the pursuit of medical study, and above all in scientific honesty, his intellectual attainment, and moral character compel our admiration. When seventy-five years more of medical progress shall have wiped away our present pretensions to knowledge and nullified our dearest assumptions, shall we be acquitted by the jury of history with the verdict that we preserved untarnished our scientific honor and kept high the plane of our professional character?

We, the present active practitioners of

medicine, hold in custody the inheritance of all the ages and should feel the duty heavy upon us to maintain our profession in all its honor and glory. The practice of medicine is in a sense not a profession; not a calling; certainly not a business; but a great and wonderful expression of trust—a great privilege and an honor supreme. In no other relationship in life is the same degree of confidence bestowed. Our patients come to us with their pains—their sufferings—their fears and their sorrows. They come with an overpowering sense of their own helplessness and a full appreciation of their entire ignorance, and a consciousness of their inability to comprehend their own condition; they come with only this one thought and object—relief. Is there anywhere in all the manifold relationships of life a more supreme test of confidence and trust? What can possibly be more absolute and abject than the unconditional surrender of body and life into the hands of another? Only a complementary recognition of the tremendous responsibility imposed can qualify a man to approach the threshold of the practice of medicine. To measure up to the degree of confidence given us, should lead us to give our lives to the endeavor to discharge to our utmost the duty imposed upon us.

How can a man think of assuming the duties and responsibilities of medical practice without adequate preparation; and is it at all remarkable that the medical education of today has become such a problem? One of the best practitioners I have even known and one whose quality of shrewdness I have always admired, said to me when I had just finished my internship: "When a man receives his M. D. he is ready to begin his medical practitioner has ever yet completed his preliminary college course; no matter how advantageous his hospital internship; no medical practitioner has ever yet completed his medical education. The science of medicine is in a constant state of flux. Progress comes perhaps slowly, but it only comes from the immeasurable interminglings and innumerable actions and re-actions of research and clinical experience. He who would keep abreast of the times must not only give himself up to unremitting toil and study, but he must also energetically employ every agency for improvement and inspiration. Where can he find greater source of inspiration and wider opportunity for intellectual improvement than in close association with his professional brethren?"

It seems incredible that there are physicians, engaged in the practice of medicine, who are so unconscious of their own needs

and shortcomings, as to be totally indifferent to the advantages to be obtained from attendance upon medical meetings; or who are so ignorant of the value of the professional society as an educational force, that they pass their time in a sort of mental lethargy, so lacking in initiative and so devoid of incentive that, after receiving their medical degree, intellectually speaking, they quickly pass into a state of suspended animation. The attendance upon society meetings stirs the quiescent into activity, quickens the mind, and by furnishing food for thought, stimulates the desire for study and improvement. There can be no greater source of inspiration and education than the meetings of professional societies, and the individual who can attend a good meeting and learn nothing is beyond redemption.

What does the professional organization have to offer its members? First of all it should afford the opportunity for social intercourse so needed to foster and multiply that spirit of harmony and good will, which has been so conspicuous by its absence among professional men—lawyers, doctors and even the clergy—but more especially doctors. Much of the envy, jealousy and petty spite; most of the ill-will and personal animosity, which have been a blot on our history, would never have been if we had known each other better. How quickly we presume characteristics and ascribe motives to persons unknown; how often these pre-judgments prove erroneous after more intimate knowledge! When we meet our professional colleague frequently; see him work in the hospital, which we use in common, we learn his good traits. The same is true of the professional society; if we think we have cause for suspicion of the professional honesty or ethical standing of a fellow practitioner, let's get acquainted with him; and where better than in the medical society? If our suspicions prove correct, the medical organization is the proper agency to deal with such questions. The man who continually and habitually absents himself from society meetings, lays himself open to the suspicion that there is something wrong with him; if he is all right, he will attend the meetings; if he doesn't attend, who knows whether he is all right or all wrong?

To derive real benefit, simple attendance upon the meetings is not sufficient; active participation in the scientific program is essential. The proper presentation of papers and case reports is of the highest educational value; it demands study of cases, extensive reading and painstaking preparation; it requires close attention to the keeping of case records, and the man who fails to keep the

best case records of which he is capable, is neglecting to develop the most valuable asset to successful practice; successful practice not estimated by the number of patients seen per day, or the amount of money collected, but only estimated by the value of the service rendered to humanity. The man, who is too busy to write his own notes, should find his time sufficiently valuable to employ some one to do it for him, and the man who can't afford to employ some one, should have sufficient time to do it himself.

Active participation in the discussions is of the highest cultural value; I do not mean aimless, wordy speeches devoid of information and lacking in thought; in the language of the Prayer Book; from the tiresome bore who discusses every paper and talks endlessly without thinking—"Good Lord Deliver Us." But it is possible for every man, who will make the effort, to take the program and pick out the subjects in which he is particularly interested, and after mature thought make a real contribution to any discussion, and, at the same time, improve his own mind by crystallizing his thoughts into words. It is true that few of us will ever be able to contribute reports of original research.

Nevertheless, the careful study and successful solution of our own problems become in the highest sense original work. There is not a man, with the qualifications of membership in the Kentucky State Medical Association, who cannot, if he really tries, evolve an interesting and instructive presentation of a subject, whose occurrence in his practice has intrigued his interested and challenged his ingenuity.

We cannot avoid the conclusion that the right kind of work in our every day practice, and energetic and earnest preparation, will enable each of us to make contributions of real value to our meetings. More important, to the individual practitioner, is the self-improvement which necessarily flows from such work.

We have enumerated the social and cultural advantages to be derived from society membership, and we come now to a consideration of the material benefits; a matter by no means sordid and commercial and of honorable importance to the practicing physician. A second constitution was adopted in 1902, and its preamble added to the aims of the constitution of 1852, the following: "the enactment and enforcement of just medical laws and the guarding and fostering of material interest."

The first expression upon medical laws was wrong from the writers of this later preamble by the rapid growth of bold and unscrupu-

lous quackery and the necessity of protecting ourselves and the public from their inroads. Never in the history of medicine has the world been free from charlatans, quacks, cults and isms, and they will probably be always with us. The attitude of medical practitioners to these guerrillas must engage our attention; much as we may regret it, we cannot ignore them. Such matters as the formation of medical policies and the enforcement of medical laws are always extremely repugnant to men engaged in the practice of medicine. Our motives have been persistently misconstrued and viciously disparaged; it is sometimes difficult to make the general public understand our reasons for asking for safeguards and checks upon these ignorant pretenders. Laws regulating medical practice are looked upon in the light of the demands of labor unions, and our efforts to require the quacks to show even the slightest degree of education and ability, are regarded as actuated by the sole motive of keeping the field to ourselves and driving away others, who might take from us some of our source of income. We must remember that the average layman does not know, as we do, that these men rarely treat cases of real illness but that they fatten upon the life blood of the neurotic and imaginative; two types whom we dread to see enter our offices; and yet, they are the very ones who should be most protected from ignorance and unscrupulousness. These cults and isms come and go; twenty-five years ago the disciples of Hahnemann filled the land; today I doubt if one who even pretends to practice Homeopathy can be found. The report of the Carnegie Foundation drove out into the light of critical inspection our own second rate medical schools, and the Homeopathic schools could not compete with the resulting greatly improved institutions. I have mentioned this at some length because I have felt that in this example may lie the agency which will help us to completely separate ourselves from the uneducated charlatan, and that improvement and advancement of the individual members of the medical profession can make the distinction between the man of science and the pretender so great, that even the public may see and understand. How long before the layman can understand that the title of "Doctor" has entirely lost its meaning; the man who sells spectacles is a doctor; the chiropractor and the osteopath who "follow the trail of the lonesome spine," are doctors; the manicurist and the chiropodist all claim to be graduates of institutions qualified to confer the doctor's degree.

We are placed in the same category with them by the state law which examines us and

licenses us through the same board. Is it any wonder that there is confusion in the public mind? I hope the time is not far off when we can rid our own body of this stigma; when the scientific training, ethical standing, title and method of licensure shall set us apart from venal pretenders. I trust that the requirements for the practice of medicine will be exacting and the examinations of the Board thorough to the end that the character, ability and training of the successful applicants may be assured; and that the certificates issued may mean something.

The present examination and licensure of the chiropractor and his like are far from satisfactory. No state in the Union has striven harder or more earnestly against quackery than has Kentucky, under the guidance of the late Dr. J. N. McCormack. But it has always been my own humble opinion that the best way to discourage and drive out charlatanism is to improve the intellectual and moral standing of the scientific physician; to give him, either by license or otherwise, the standing and distinctive approval to which his attainments entitle him; and to protect him in this privilege by prohibiting others from advertising or assuming such rights. The provisions of medical legislation are the outcome of political bargaining influenced by powerful lobbies; and the medical man engaged in politics, even for the worthiest ends, presents but a sorry spectacle. If we could create a licensing committee of the Kentucky State Medical Association, entirely independent of the State Board, which, after investigation and examination, could place upon the successful candidate a stamp of approval which could be protected from imitation and which he could wear and which could be protected from imitation and counterfeit, I believe we would have progressed far.

It is eminently fitting and right that we give attention to the business side of the practice of medicine. It is a fact recognized by intelligent laymen as well as the medical profession, that the practice of medicine has in all ages been regarded and treated as an altruistic or philanthropic calling, mainly—the daily life-long contact with scenes of the sick room and its accompaniment of agonizing grief, and mental and bodily suffering, to which must be added the acute and heavy sense of responsibility, the cultured and humane physician feels in ministering to the sufferers—fully accounts for the enormous amount of free or charity service by the humane element of the medical profession; and the physician who is no human, i.e., human, is a monstrosity. Such a one is divested of

the first and most distinguishing characteristic of his kind; the most important and elevated of his nature. But these very admirable and creditable principles of unselfish conduct have brought baleful and detrimental results to the best interests of the profession and public alike. Neither one can be a party to the violation of the universal law of compensation, "The laborer is worthy of his hire," with impunity. The poorly or inadequately paid doctor is unfitted for his calling; harassed and annoyed by his inability to meet his own obligations and denied the small luxuries, even the comforts of life, neither body nor mind can be able to discharge their proper functions. Inadequate compensation which ignores the cost of production and reasonable profits, inevitably makes for and ends in a deterioration of service. The high-minded physician must steer a course which will save him a shipwreck on the rocks of inadequate compensation; and on the other hand avoid the dangerous tides of sordid commercialism. It is very necessary that the physician be in its best interpretation a better business man.

Reviewing the heavy responsibilities our profession must carry for the helpless sick confided to our care, we must make use of every means for betterment and improvement; but of more importance and of greater value is a consideration not to be measured in intellectual improvement or in material success; the consciousness of unity with the great mass of our working profession; the feeling of having earned the privilege of sharing, if only in the smallest degree, in those triumphs of medical progress, which through all the ages have lightened the burdens of mankind, and by the prevention and cure of disease have contributed so much in prolonging and adding comfort to life; should kindle all that is noblest in our natures.

The Kentucky State Medical Association belongs to us—its present members; its past so nobly inspired is our inheritance; its future is our responsibility. Let us so labor together as to make it a still greater agency for the elevation of professional character and the improvement of scientific attainment that the profession shall become more capable and honorable within itself, and more useful to the public.

BLOOD TRANSFUSION METHODS AND RESULTS*

By R. L. WOODARD, Hopkinsville.

Tanaquila, wife of Tarquin, "The Ancient," in her Wisdom Book, refers to blood transfusion. Maan, commander of the armies of Ben Adad, was transfused for the cure of leprosy. Pliny and Celsus mention only to condemn the procedure. In 1492, an effort to prolong the life of Pope Innocent VIII. by transfusion was unsuccessful. The discovery of the circulation of the blood by Harvey in 1613 was followed by quite a number of more or less successful attempts at transfusion by men who had already conceived the idea of intravenous medication. The high mortality and negative results led to abandonment of the procedure until early in the nineteenth century when it was again revived and used with varying success until Carell's work on the blood vessels and Crile's development of a practical surgical technic for transfusion placed direct transfusion in its present status.

In 1913 Lindaman worked out a practical method of indirect transfusion and coupled with the now generally recognized importance of hemolysis and the agglutination test before operation, has placed the procedure on a sound, practical basis and we are now only on the threshold of the possibilities of the procedure. With the never failing energy and inborn ability of our surgeons of today, transfusion of blood and intravenous medication bids fair to take the leading role in medication in the future.

The direct method is transferring of blood from the donor to the recipient by direct connection between the veins of the donor and the vein or artery of the recipient. The indirect method by transferring the blood by means of various apparatus through which the blood is drawn from the vein and transferred to the recipient by means of a syringe or other apparatus. The methods and apparatus used have varied from time to time and still vary very much according to the individual fancy or ability of the operator. Crile has developed a method by anastomosis of the vein and artery, which in his hands is quite satisfactory, but this operation requires a delicacy of touch and knowledge of technic that few men possess. The indirect or citration method is quite satisfactory and is much easier and simpler to do, and has a much wider field than the direct method. Both of these methods have been carried out quite extensively in various large hospitals and it seems to be the consensus of opinion

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that the citration method is as efficacious and more applicable to a larger field than the direct method.

The citration method, which owing to its simplicity and wide range is the most popular, consists of two distinct steps: first, preventing coagulation of the blood which is collected and second, transfusion of the collected blood into the circulation of the recipient, and this is true no matter what kind of apparatus is used, and it seems that the simplest apparatus gives best results. Two methods are commonly used—the gravity method and the three-way syringe method. The objection to the gravity method is the lack of control, the excessive length of tubing necessary to secure the proper amount of gravitation and the danger of outside contamination. The three-way method is open to the same objection. An apparatus devised by Hoffman Habein eliminates most of these difficulties and is probably the most satisfactory three-way apparatus.

INDICATIONS FOR TRANSFUSION.*

By C. C. HOWARD, Glasgow.

If we would always carry out those measures that are really indicated and leave off those that we thought might be of value, a great many lives would be saved. There often comes a time in a case of serious illness when your better judgment will become warped and you will do something that is not indicated.

The only real indication for Transfusion of blood is Hemorrhage, Acute or Chronic. All the symptoms of acute Hemorrhage are but a cry for blood. Of course, first control the Hemorrhage before transfusing. Then a very small number will require transfusion. A patient who does not begin to react quickly after the Hemorrhage is controlled, should be transfused if you have a proper donor. There is no one rule you can go by. Use your judgment. Oftentimes, hypodermoclysis will be much safer for the inexperienced.

Chronic Hemorrhage: Here especially if any surgery is indicated it is very beneficial.

Post-Operative Oozing: It is of marked value.

Pernicious Anemia: A mooted question. Personally, my cases that refused transfusion have lived longer than those I have transfused. They all finally travel the same narrow valley that leads out into the Unknown.

Leukemia: No special value.

Acute Infection: Often tried; have never seen it prove of any value. Have seen the marked reaction prove fatal.

Chronic Infection: Perhaps of value in preparing for operation.

Pupura Hemorrhagica and Hemophelia: Markedly indicated. Subcutaneous injections of pure blood often as good.

CONCLUSION.

1. Transfuse to take the place of lost blood after controlling hemorrhage.

2. Transfusion is of value in some selected cases of chronic hemorrhage, post-operative oozing, purpura hemorrhagica and hemophelia, and chronic sepsis.

3. Don't forget the gravity of injecting any foreign substance into a vein. Reactions often occur regardless of precautions.

INTRAVENOUS USE OF MERCURO-CHROME IN BLOOD STREAM INFECTION.*

By VIRGIL E. SIMPSON, Louisville.

The treatment of blood stream infections or bacteriemia is not yet satisfactory. During the past two decades silver salts, magnesium sulphate, bichloride of mercury, formic aldehyde, ammonia sulphate of copper and other drugs have been tried by the intravenous route. Vaccines are too slow, hence, use less. Serums some times act happily in a given case and in the next one may register an utter failure. Blood transfusions may raise the clinician's hopes that a dependable remedy has been found only to be catalogued as apparently useless before his series is completed.

In this condition, as in other diseases, the virulency of the invading organism, the size and rapidity of the stream of germs that is being poured into the blood stream and the resistance of the patient, all are determining factors of tremendous importance in the final outcome.

The ideal treatment would be a drug that would kill the germs and not harm the host. No such ideal agent is yet available. It is in the conviction that mercurochrome approaches the so-far-unobtainable that this discussion is presented. Blood stream infections will continue to claim their victims despite its use. Some will die because of timidity in using adequate dosage; some will die because the focus of colonization cannot be destroyed and constant reinfection obtains; some will die because of insult to vital organs before treatment is begun and still others will die because of secondary foci. Staphylococemia is a fruitful source for this latter group. The tendency of staphylococci to acquire hemolytic properties when growing in fat is fairly well known and the development of osteomyelitis, etc., often terminates a case fatally although

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the blood stream may have been sterilized.

The merurochrome compound referred to in this paper as mereurochrome is to be understood to refer to "mereurochrome 220-soluble" which chemical is the disodium salt of 2:7—dibromo-4-hydroxymercuri fluorescein, which contains between 23 and 24 per cent of mercury. It is manufactured by Hynson, Westcott and Dunning, Baltimore, Maryland. There is no United States patent or trade mark. It is marketed in tablets each 4.6 grains and in granular bulk form. There has recently been put on the market prepared for intravenous use, 10 gram vials of this latter preparation. It is freely soluble in alcohol in 1 to 65 parts; is freely soluble in water to at least a 50 per cent strength and insoluble in the ethers. The pronounced stain of the skin caused by its use can be removed by washing in a solution of potassium permanganate followed by a 2 per cent solution of oxalic acid.

INCOMPATIBILITIES OF MERCUROCHROME

Many basic substances such as alkaloids and local anesthetics, are precipitated by certain complex mercury salts.

Acids combine with the sodium in mereurochrome and the bromo-mercuri fluorescein complex is precipitated as an insoluble compound with acidic properties. This precipitate contains all of the essential constituents of the dibromo-oxymercurifluorescein radical viz, bromin, mercury and the dye but none of the sodium or acid radical.

A few alkaloids containing basic substances do not cause precipitation. Caffein, coniin, colchicin, theobromine, sodium, salicylate and theophyllin sodium acetate do not give precipitates. The remainder, a long list, including atropin, aconitin, homatropin, codein, morphin, pilocarpin, scopolamin, spartein, and strychnin all yield as red precipitate.

Stolz, was apparently the first to call attention to the precipitation of mereurochrome by the local anesthetics. His experience was with procain which he had instilled into the urinary bladder followed by mereurochrome. The precipitation was sufficient to occlude the ureter and retention resulted. The injection of sodium carbonate solution redissolved the mereurochrome and the bladder was cleared.

The local anesthetics give precipitates rather uniformly; alpyrin, butyn, benzococain, apothecin, cocaine, eucaine, phenecain, tropocain, stovain, quinine and urea, and procain have been found to cause precipitation. Substances devoid of basic properties do not cause precipitation though grouped as local anesthetic.

MODE OF ACTION

Rupel used the phrase "killing concentra-

tions" in reference to the object to be obtained in treating urethral infections of gonococcal origin.

This killing property is necessary and there are few agents desirably germicidal which may be applied to mucous membranes with safety to its structure. In the field of diseases of the genito-urinary tract where mereurochrome first came to be used there was an especial need for a deeply penetrating nonirritating germicide of quick action and low toxicity. Rapidly its field was widened to include middle ear disease, dentistry, furunculosis, infected wounds, tuberculous sinuses, industrial surgery and diphtheria carriers.

We are interested in the present discussion in the action of mereurochrome in blood stream infection to which field its germicidal action has been extended, and I would carry the phrase "killing concentrations" into this field of inquiry. I do not believe that the action of mereurochrome in blood stream infections in the direction of benefit can be regarded as simple in its action as that which occurs when it is used to destroy infections that are essentially local. I am inclined to set down the effects of mereurochrome when used intravenously as being dependent upon two explanations:

1. A direct chemical action.
2. An indirect biological action.

This direct action of mereurochrome in the blood stream is a rapid one. In fact what killing power is exhibited takes place during the first hour following its administration.

This bactericidal power is delayed in the various excretory organs depending upon the rapidity of elimination of mercury by those organs. For instance, under normal conditions the kidney eliminates much of the mercury but at a rate which reaches its maximum in power 3 to 5 hours after administration. Hence, if the drug be given to kill infection in the kidney complete, or, partial sterilization of the urine is not to be expected until this period of concentration is passed. Another fact of interest may be noted in this connection, viz: the killing power in the urine is not increased in direct proportion to an increase in dosage. This is due to the greater elimination by the kidney under small dosage while with large dosage the intestinal elimination is greater due to the diarrhoea induced.

This direct chemical action of mereurochrome on diseased producing bacteria involves two postulates—the killing concentration for germs in the laboratory and the killing concentration for the same germs in the living blood stream. The very interesting question obtrudes itself into this discussion at

this point, is "the killing concentration of mercurochrome for streptococci and staphylococci in a test tube also a killing one for these cocci in blood?" We are inclined to feel that for practical purposes it is safe to assert that there is probably no appreciable difference. Attention will be called under the heading of dosage to the killing concentrations that have been determined, *in vitro*.

The indirect action of mercurochrome when used intravenously for blood stream infection involves its effect as a vaccine. When mercurochrome is injected into a blood stream swarming with living bacteria in a concentration sufficient to kill any considerable portion, there is at once produced a condition identical with that obtaining from the injection of large dose of an autogenous vaccine. The opsonic index falls primarily as a result of the insult from any foreign protein, to rise secondarily, if the dose be not overwhelming, accompanied by the production of specific anti-bodies which in turn assist in the destruction of such germs as may have escaped the direct chemical action of mercurochrome. If this conception of the biologic effects of mercurochrome be sound

then the study of the drug's use in the immediate future becomes one of clinical determination of the upper level of safety in concentration in the patient's system. It also offers a more hopeful outlook for those cases where the area of primary infection cannot be made entirely sterile, and from which, therefore, there continues to be poured into the blood stream fresh doses of the infecting germs. While this conception of an indirect biological effect from the intravenous use may not be original yet I have seen no reference to it in the literature. Granting that it occurs, however, it must be emphasized that the major benefit from its use in blood stream infections comes from the chemical, hence, germicidal action of the drug.

In addition to this direct action of rendering the blood definitely bacteriacidal by simple mercurochrome injections it also causes it to become bacteriostatic.

These tables taken from the studies of Hill and Colston on *B. Coli* injected into rabbits show this more clearly than a word picture:

It will be seen from these tables that the bacteriostatic action of the blood against *B. Coli* was definitely increased and that the greatest increase occurred between the period 15 minutes and 45 minutes after injection after which it began to disappear.

TOXICITY

Since the action of the drug is largely bactericidal it must be used in concentrations sufficiently high to kill the germs present in a given case. This concentration varies with different organisms and has been fairly accurately determined, *in vitro*, by several observers. The vital question then is, will the killing concentration for the patient's germs, harm the patient's cells? Fortunately for us and our patients in the struggle which ends in a, "survival of the fittest," is the bio-chemical fact that unicellular organisms are generally, less resistant to germicides than multicellular ones. Quinine, one of the oldest specifics, affords a well-known example. So, mercurochrome may be used in a concentration that kills the disease producing germ and yet permits the patient to live. If there be any given germ of which this is not true then in such a case mercurochrome is not only useless but positively contraindicated. The determination of the killing concentration for a given germ *in vitro* can be readily determined; the threshold of safety for the patient is a more difficult problem. Seven mgms. per kilo of body weight has been found to result in no appreciable deleterious effects to the average patient and to be of sufficient toxicity to destroy the usual germs of blood stream infec-

TABLE I

Rabbit No. 9—1 mg. Mercurochrome per Kilo body weight

Time of Bleeding	Time of removal of specimens for plating and number of bacteria per c.c. so obtained.			
	30 sec. af. inocula.	1 hr. af. inocula.	24 hrs. af. inocula.	minnoc. control
1 min. before injection	6,900,000	3,900,000 (0.56)	15,264,000 (2.21)	0
15 min. after injection	7,400,000	7,000,000 (0.94)	6,900,000 (0.93)	0
30 min. after injection	6,800,000	5,100,000 (0.74)	2,544,000 (0.37)	0
45 min. after injection	6,700,000	6,100,000 (0.91)	7,632,000 (1.13)	0
1 hour after injection	6,100,000	6,000,000 (0.98)	15,900,000 (2.00)	0

TABLE II

Rabbit No. 10—1 mg. Mercurochrome per Kilo body weight

Time of Bleeding	Time of removal of specimens for plating and number of bacteria per c.c. so obtained.			
	30 sec. af. inocula.	1 hr. af. inocula.	24 hrs. af. inocula.	minnoc. culture
1 min. before injection	6,700,000	6,200,000 (0.92)	6,053,000 (0.90)	0
15 min. after injection	9,700,000	7,600,000 (0.78)	3,053,000 (0.31)	0
30 min. after injection	8,200,000	5,500,000 (0.67)	2,544,000 (0.31)	0
45 min. after injection	5,300,000	4,100,000 (0.77)	4,515,000 (0.85)	0
1 hour after injection	9,300,000	6,500,000 (0.69)	3,200,000 (0.34)	0

ing tolerance to the drug. 10 mgms. per kilo is fatal to rabbits in 24 hours while dogs tolerate this dosage very well, a temporary reaction. Different species of animals show differentiation of phenolsulphonephthalein output and albuminuria without casts of about one week's duration constituting the extent of insult noted.

Is mereurochrome equally toxic for all subjects of the human species?

This query must be answered, emphatically, in the negative. Buten, for instance, reported a case of salivation occurring 48 hours after two intravenous injections of 10 c.c. of a 1 per cent solution each at 48 hour intervals. While he neglected to state the weight of his patient he does state it was a male adult and this dose is about one-fourth the average dose. Dosage of drugs must always remain a relative matter dependent upon a number of factors. It can be stated, however, that a blood stream infection does not, per se, raise or lower the threshold of safety of any patient for any preparation of mercury; diseased gums and dental caries may do so. Others have stated that merenrochrome intravenously always causes a reaction with temperature, etc. This statement is not borne out by my own experience in its use and to but a small degree in the literature I have studied unless the authors have exhibited an unusual indifference to the occurrence of such reactions when they do occur. In my observation of the after effects of the drug it has been rather the exception than the rule, for febrile manifestations to present themselves at least to a degree of clinical importance. When they do occur I do not believe they are an expression of mercury toxicity in the patient but are wholly due to a protein intoxication from the destruction of countless germs in the blood stream. This conclusion is based on observations of cereulism induced by other methods of administration and for conditions with no blood stream infection. I see no difference in the reaction occurring from the injection of a vaccine containing dead bacteria in the blood. Both are expressions of a response to an insult; the insulting agent in each instance is a foreign protein and the degree of response is determined fairly uniformly by dosage. In other words, I draw a sharp line of distinction between those effects resulting from over dosage of mercury-ptyalism, spongy gums, sensitive teeth, intestinal colic, diarrhoea, albuminuria, etc., and those of a purely biological origin—temperature, chillness, rapid pulse, malaise, etc. The latter are of little importance, clinically; the former are of concern to just the degree of mercurialization produced.

One is impressed in following the current literature by reports of its use which resulted in stomatitis or diarrhoea, etc. For instance, one clinician used 15 c.c. of a 1 per cent solution daily for 19 days in a multiple sinus burrowing around the trochanter and even extending into the pelvis through the acetabulum, and then reports the case as one which "may be of interest in emphasizing that its use is not entirely innocuous." Why should its action be expected to be innocuous? It contains a definite percentage of mercury and it is upon the presence of that per cent that its beneficial action as a germicide depends entirely. The action of mercury has long been known, its powers and its limitations as a bacteriacidal agent are well authenticated. The advantage that mereurochrome enjoys over bichloride of mercury for example is that it does not precipitate protein and hence is not as irritating as the latter nor is its killing action as limited for that reason.

INDICATION FOR USE AND HOW DETERMINED

While a localized infection may be helped by mereurochrome intravenously the real indication for its use in this manner is a bacteremia—a blood stream infection. Clinical criteria are helpful, it is true, but a positive blood culture is the only certain and dependable evidence of indication for its use intravenously. I am so insistent upon this that I am tempted to set up the corollary, no blood culture, no mereurochrome intravenously. Laboratories are readily accessible to most doctors and they can obtain a specimen of blood, send it to a laboratory and get a reply by telephone or telegraph. If the doctor would do this early and not wait until the patient is *in extremis* he can keep two jumps ahead of most emergency needs.

Closely related to the indications for its initial use is the question so often asked me, "When should the second or more doses be given?" The answer is the same as for the first dose—Blood cultures. If the initial dose sterilizes the blood stream, as it often does, there is no indication for a second dose except when germs are being liberated into the blood stream, continuously, from a focus of infection which is itself not sterilized by the intravenous use of mereurochrome. A case selected from my records will emphasize this point. This patient had an infected hand and forearm. The point of entry could not be found. The Blood Culture showed a mass infection of streptococci nonhemolyticus; mereurochrome was given intravenously and a second culture in 6 hours showed a nearly negative result. The arm and hand were but little, if at all, affected by the injections; germs were being continuously forced into

the blood stream from the involved arm and hand and a third blood culture at the end of 24 hours showed a bacteremia neraly of equal severity with the first done before mercurochrome. My own clinical procedure is to have a blood culture in a suspected case. If positive, mercurochrome is used and a second specimen of blood is cultured 4 hours after the injection. If still positive a second dose is given, 24 to 36 hours having elapsed since the first dose as most cultures require about this period for development. Four hours is long enough to wait to obtain the second blood specimen since the action of the drug is rather a chemical and not a biological one this early.

DOSAGE

The dosage of mercurochrome should be thought of in terms of mg. per kilo of body weight. Piper began his clinical work with 5 mg. per kilo, this amount having been shown to the non toxic to rabbits. This was soon increased to 6 mg. per kilo and stated as being considered safe. The weight of a patient of 154 lbs. is 77 kilos and such a patient getting 5 mg. per kilo would receive a total of 350 mgs. as an initial dose. Translated into terms of proportion of drug to blood bulk in the body such as patient would get enough mercurochrome to make a 1-17, 115 solution in the blood.

To facilitate calculation of dosage based on varying numbers of mg. of mercurochrome per kilo of body weight Table 3 may be helpful.

TABLE III

Body Weight—154 pounds—70 kilos.
Blood bulk—(1.12 body weight) 125.6 pounds; (blood sp. gr. 1055) 12 pints; 1 pint equals 7680 m.; 12 pints equals 92160 m.; 92160 x .065 equals 5990.4 gms. or 5,990.100 mgs.

Mercurochrome dosage at 5 mg. per Kilo equals (70 x 5) equals 350 mgs.

In terms of drug to blood bulk equals 350-5990, 400 or 1-17, 115 solution Mercury Dosage:

350 mg. mercurochrome x 24 per cent equals 84 mg. of mercury or 1 1-4 grains.

In terms of blood bulk: 84-5,990,400 or 1-72, 728 solution.

Another method of expressing dosage used by many clinicians is by per cent solutions of the drug in the solvent vehicle. The average initial dose by this method is 25 c.c. of a 1 per cent solution per 100 lbs., of body weight or 0.55 c.c. of a 1 per cent solution per kilo. A patient weighing 154 pounds or 70 kilos would get about 40 c.c. of a 1 per cent solution or better 20 c.c. of a 2 per cent solution. This is the equivalent of 5 mg. per kilo.

The insufficiency of such dosage becomes apparent when considering the killing concentrations necessary for various germs observed in the laboratory, which may be tabulated as follows:

Concentration	Kills	Organism	Time
1-100		B. Col	30 sec.
1-800		B. Coli	1 min.
1-1000		B. Coli	5 min.
1-5000		B. Coli	15 min.
1-20,000		B. Coli	24 hrs.
Concentration	Kills	Organism	Time
1-100		Staph. Aurius	instantly
1-1009		Staph. Aurius	1 min.
1-5000		Staph. Aurius	5 min.
1-10,000		Staph. Aurius	15 min.
1-20,000		Staph. Aurius	20 min.
1-8000		Strep. Hem	40 min.
1-16,000		Strep. Hem	1 hr.

Since a 1-20,000 solution kills staphylococci in vitro in 24 hours, a 1-17,115 solution in the blood can scarcely be considered bacteriacidal. I regard 7 mg. per kilo as a more adequate dose and is reasonably safe. This is a dosage of approximately 60 c.c. of a 1 per cent solution or better 30 c.c. of a 2 per cent solution for a patient weighing 70 kilos.

ADMINISTRATION

To combat a blood stream infection with mercurochrome intravenous introduction is necessary. The technique differs in no essential particular from intravenous use of any other agent.

As attention to detail is essential for both safety and success in intravenous therapy it may be worth while to stress some things learned by my experience with mercurochrome.

1. Freshly distilled water is the best vehicle for making the solution. When this is not available any potable water boiled and cooled to approximately body temperature is acceptable. As mercurochrome is a germicide it is not necessary to boil the solution again after the drug is added. There is now available for use mercurochrome prepared and preserved for intravenous use. This lessens the possibility of contamination both in the drug store and at the bedside.

2. As the quantity to be injected is small a hypodermic syringe of 20 or 30 c.c. capacity, sterilized, is all that is required. Apparatus, the same or similar to the Arsphenamine outfits in common use is not necessary or even desirable. I prefer the syringe; some of the reasons for this preference become apparent in the further consideration of the technique.

3. Be absolutely certain the needle is in the vein. Intravenous injection is impossible unless the lumen of the needle is in the lumen of the vein but there is an imperative reason for care when using mercurochrome. If the solution be injected into the perivascular tissue considerable pain and induration results. Even necrosis is likely. The absorption is slow—painfully slow to the physician concerned. I have had one such experience in a young woman whose vein was deeply seated in subcutaneous fat and the needle was in-

introduced guided by the tactile sense. Blood flowed back into the syringe but due to my faulty technique the needle some how became displaced being either withdrawn from the vein lumen or pushed through the distal wall and some of the solution was injected into the tissues. Quite an area of induration resulted which was very disabling and painful and was not entirely absorbed for three weeks.

4. Because of the similarity of color, particularly in artificial light, between the mercurochrome solution and the blood I use an empty syringe attached to the needle for introduction. When the needle is in the vein blood flows into the syringe spontaneously or it may be drawn by drawing back the plunger a bit. *Never attempt to introduce a mercurochrome solution unless this "venous wash" is obtained.* With needle in the vein the empty syringe is detached from the needle and the syringe filled with the drug is attached and slowly introduced. A rate of injection of one c.c. per minute is as rapid as is advisable.

5. A rubber tube or tourniquet will be satisfactory for distending veins ordinarily prominent. But patients are encountered whose veins are difficult of locating visually or even palpably. In these cases I have found the blood pressure apparatus of very great help. Apply the cuff above the elbow in the manner used for blood pressure readings; determine the systolic and diastolic pressures then run the pressure up to the systolic reading and lower it to a point midway between the systolic and diastolic figures. Holding the pressure at this point, which I call the "Intravenous level," for about one minute or longer allows the blood to flow through the arteries into the arm but prevents its return by the veins. The veins become markedly distended and often an otherwise difficult or impossible entry becomes relatively easy. In such cases as are still difficult in spite of this procedure one may facilitate the identification of the vein by applying a wide rubber tourniquet or even a bandage to the hand and forearm beginning at the finger ends.

SUMMARY

1. The conclusion is emphasized that there is, as yet, no uniformly satisfactory treatment of bacteremia.

2. Mercurochrome action is a two-fold one: Chemical and Biological.

3. Attention to detail in technique of administration is urged.

4. Dosage is the most difficult of its problems. The opinion is expressed that the usual dose is too small. The idea of "killing concentrations" must be kept in mind.

5. The toxicity of mercurochrome is the toxicity of mercury.

6. The indications for its use and for repetition of dose is discussed and the necessity for blood cultures insisted upon.

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DISCUSSION

Geo. Purdy, New Liberty: In listening to this paper I realize that another step in the research concerning this seemingly important thing has been made. In considering this question we are forced to realize that very little has been said in medical literature on the question. Very little record of real importance has been made. It is my information that this method has been thought to be efficacious in the treatment of streptococic infections and in colon bacillus infections and several others, but in the infections caused by the staphylococci it is not so beneficial. Young and Hill of Johns Hopkins think that

other stains are more beneficial in the latter infection than mereurochrome.

We are forced to realize that this remedy is still in a stage of experimentation, and for the general practitioner to adopt it as one of his regular remedies, it seems to me, would be inadvisable. I believe that we will be forced to await further research and more investigation similar to the research and investigation that has been brought forward today by Dr. Simpson.

I appreciate this paper very much. These are the things that will help us to decide whether or not this remedy is what the manufacturers claim it to be. I believe that we will do well to wait for more light on the question before we adopt it as a regular remedy in our treatments.

Rowan Morrison, Louisville: I want to say that I have certainly enjoyed the symposium that we have had this morning. I think that why we leave home and come to these meetings is usually because we expect to get a sure thing to take back, but my experience in life is that we rarely ever get a sure thing and I don't think we have gotten any real sure things here this morning, although we have some of the most valuable papers that have been presented.

In the first place, I enjoyed Dr. Howard's paper. It was terse, it was to the point, and I think it covered, from my standpoint, practically everything that one could say about the transfusion of blood. He particularly indicated that it should be used where it should be used and there is no necessity for using it in a great many chronic infections, and even now it seems to me that in pernicious anemia blood transfusion is very, very doubtful. If I had pernicious anemia I wouldn't take it. I will say that.

The next question comes about Dr. Baldauf's paper. It was very beautifully worked out. It gave us a great deal of information. The principal thing that impressed me in that paper, however, was one thing, that the dental man at the Mayo Clinic said it would probably take him two or three years to determine and observe so as to know how to answer those questions they had put to him in the proper way, and it is going to take us some time to answer those questions, but that does not, in my mind, deter us from coming here and trying to think among ourselves and try to determine them.

Personally I was up against a proposition of having my teeth out and not being able to wait two years. I had bad teeth and I was afraid to wait for those years until this could be definitely determined because I was afraid that I would develop Bright's disease or heart disease or the incipency of those things, and so I had practically all of my teeth out, they were no good, and I am told by good clinicians that I

have not heart disease or kidney disease and I am thankful for that, although I am not grateful at all that I can not enjoy a luscious beef steak with that degree of pleasure that I could before I had those horrible things taken out of my head. We have to determine those points, and I say we come here for consideration.

Dr. Simpson's paper is also most beneficial and most enlightening, but he says in the very beginning of his paper that the sterilization of blood stream is not satisfactory, and we know that. His paper will show it. That does not cause us to go home and say we get nothing from this paper, it causes us to go home and think about about it and the proper places in which to use the method that he has so wonderfully shown. I have enjoyed these papers exceedingly much.

J. Garland Sherrill, Louisville: For many years we have been extremely desirous of finding something that would combat septic infections after the local condition had gotten beyond surgical relief, and within the past few years there has been a great deal of experimentation on intravenous therapy. Dr. Hugh Young and Justin H. Hill made a large number of experiments with various drugs injected into the circulation with a view of combating sepsis. Mereurochrome was 220 of this series, and it was used with a view first to checking urinary infections.

Subsequently, however, several cases of sepsis and blood stream infection were treated satisfactorily, so that when Dr. Young's paper came out it created considerable impression. It seems to me that two or three points are of value in studying this line of work, and that is that though you kill all the bacteria in the blood stream, you may not counteract the toxic material which is previously produced in the blood vessel; therefore, we cannot expect absolute certain and positive cure for the fact that there may be so much of the toxic material poisonous to the patient that it overcomes his resistance and he goes on and dies regardless of the fact that you have sterilized the blood stream of active growing bacteria. This is shown in one of the cases reported by Dr. Simpson and I think it is very well that we bear that in mind. In treatment of this kind the focus of infection should be removed or the absorption stopped. First, the injection is made into the vessel according to the usual technique, and supporting methods employed to carry the patient over this dangerous condition. If we bear that in mind we make a complete treatment and I believe it would prove very valuable indeed.

There are many other substances besides mereurochrome which are used in the blood stream and will prove beneficial in certain conditions but this is at present apparently the most active of all bactericides which we are capable of using

in the blood stream.

Louis Frank, Louisville: We are not always able to have a primary focus so ideally situated that it can be removed. The cases that disturb us most are those in which the seat of the primary focus cannot always be definitely determined.

We have in mercurochrome, I think, a new remedy of very great value. We have had some experience recently in its use. It is not by any means always a sure shot. That must be borne in mind.

There may be cases in which one will get marvelous results, the type of cases which the essayist mentioned in which we get secondary foci in the bone namely in osteomyelitis, we think it may probably be particularly useful. We have used it in two such cases, but accompanied always with other means of treatment. We have also, I think in association with Dr. Simpson, treated one or two cases of pneumonia post-operative in character, one of which showed quite remarkable effects from the intravenous injection of mercurochrome.

In the treatment of septic cases, as said, we must not depend purely upon these injections alone, for as indicated in the discussion yesterday, there are other useful agents and we should anticipate in our treatment many of the things which may happen in the course of a surgical disease. For instance, in osteomyelitis, or other forms of septic infection, we should not lose sight of blood transfusions.

This has been discussed in another important group of papers which have been presented in the symposium this morning.

We should not have failed, if possible, and if the patient lives long enough to have attempted immunization or to have established immunization to the infection in another individual, the blood of whom may match up, the serum of which may when immunity is established be used in treating the patient. It is sometimes difficult when various methods of treatment are used together to say just exactly from which your benefit has come; it is difficult to estimate absolutely accurately the particular advantage of each. The mere fact that we get sterilization of the blood over a given period does not mean that the case will be cured, and we should not sit by and depend upon this alone. These are the points that I would bring out, first, that it is not always possible to determine the exact focus of infection, and second that the fact that we have a valuable medicament in mercurochrome should not prevent the use of other forms of treatment which are known to be efficient in the handling of blood stream infections.

J. A. Stucky, Lexington: Dr. Baldan's paper followed by the demonstration by Dr. Heyman leads me to suggest, that we frequently overlook

the focus of infection and the point made by Dr. Heyman which was very lightly passed over, I think, a very important one.

I recall a case of recurring arthritis and one case of first stage of glaucoma where I looked at intervals for several years for a focus of infection. The patient had been examined in each department of the clinic and no cause found for the trouble, but a third radiograph revealed an unerupted upper molar, lying in horizontal position. This was removed and all arthritic and ocular trouble was relieved. It is my experience, (I have reported several of these cases at the American Academy of Ophthalmology) that frequently an unerupted tooth is the focus of infection.

Another case was a woman of fifty-eight years of age, a chronic neurasthenic, so-called, and as soon as the unerupted tooth was removed she was relieved. A third case, a young woman thirty-two years of age, who had had all of her teeth removed and is wearing an upper and lower plate. She is still having her trouble and two weeks ago came to me with an earache, referred to me for the pain in her ear, in addition to pain in her jaw. She had the gasserian ganglion injected and was only temporarily relieved. I asked for another X-Ray and we found a small black spot in the right side of the inferior maxilla, incision revealing a broken needle. In reply to inquiries as to when her teeth were extracted she said, "The first one under local anesthesia about twelve or fourteen months ago.

I believe when we ask for an X-Ray of the teeth we should insist on the radiologist getting a view higher up than the root apex.

Henry Rubel, Louisville: I want to congratulate the Society on hearing one of its best papers. I have been interested in the intravenous use of mercurochrome in regard to obstetrical sepsis.

On my service at the City Hospital, some months ago, I decided to institute this procedure. I went on the surgical service just to see how they were using this drug. The drug was being used in five milligrams per kilo of body-weight. That means that a man weighing 100 pounds was entitled to twenty-three c.c.'s. of a 1 per cent solution of mercurochrome.

We had a case sent in which, on the fifth day, started to run the typical temperature, 104 degrees, then a drop to 99 degrees. I thought this was a typical case on which to try out mercurochrome. Before giving the injection, I withdrew some blood and had it sent down to the laboratory for a pathological report. I then used twenty c.c.'s. of a one per cent solution and I sat right there because I wanted to see what the reaction was like. They told me on the surgical service that in about thirty or forty minutes the patient would start chilling. I waited there, and

in thirty minutes the patient complained of a terrific headache for which we had to give her some aspirin and a quarter of morphine to relieve it. After that the chilling sensation was terrific. One chill would rapidly follow the other and although we had numerous blankets surrounding her and about six hot water bottles, she assumed the characteristic position that all colored folks do when they have a chill, she would sneak under the covers. That lasted about an hour. Then she complained of an intense intestinal cramping sensation. Then she got up a violent diarrhea which was finally controlled by sub-nitrate of bismuth and paregoric in large doses. We started with a temperature of 104 degrees, and when I saw that thermometer after the chills had ceased I was about ready to leave the room. It was 107.3-5. I thought if that is the reaction that we get in all these conditions it would be pretty severe. Two hours later her temperature dropped to 102 and that night it was 101. The following morning the patient's temperature was 98 and after that she never had any recurrent chill. The blood culture in this case showed a streptococcus infection. This patient was not subjected to any more mercurochrome and she was discharged in about ten days absolutely free from symptoms.

After having had that experience with twenty c.c.'s of a one per cent solution and finding out that we had severe intestinal cramps, a bloody diarrhea and a highly concentrated urine which showed albumin, but no casts, I decided that hereafter we would use a ten c.c. of a one per cent solution in all our cases to obviate this severe reaction that we had.

It is hard at times to get your blood cultures as quickly as you would like your mercurochrome, so therefore on my service when typical cases come in which I think there may be a possibility of puerperal sepsis starting, we routinely give ten c.c.'s of a one per cent solution. We have never had any salivation, any ptyalism, any spongy gums or any bleeding following this routine.

C. C. Howard (In closing): I have nothing to add as to indication for transfusion but I would give one contra-indication; don't transfuse because it is a spectacular thing and to impress the family. That has often been done.

CHRONIC OSTEOMYELITIS AND TUBERCULOUS FISTULAE.*

By B. A. WASHBURN, Paducah.

My subject reviews a class of cases that habitually gives the bone surgeon much trouble because of following pathology. You may find the bone canal full of pus, often housing spiculae of bone, and sinuses at different points where the pus has burrowed its way through to the external surface. The periosteal surface may be corrugated due to the inflammatory changes. You may find a fibrous thickening and matting of the muscle tissues so extensive that the bone scales will sever attachments, when the field is exposed for operation.

The diagnosis and treatment may be easy of selection but prognosis is most often bad because of the pathological and physical condition of the patient. However, if the prognosis is negative the diagnosis and treatment has accomplished nothing. The diagnosis and selection of treatment in these cases should have the most conservative consideration. In types of this class, pictures of which I will presently exhibit on the screen, you can recognize the resistance the cases offer when diagnosed as localized infections, and when given an operation without treatment to remove the pathology in the case. Verification of this statement will be shown you in the pictures of different operative fields, selected at different times in an effort to remove the pathology. Successful surgery in these cases means the elimination of the destructive tissue, and it has been my experience that it comes only when constitutional, supportive and injection treatment is used. If then an operation is found to be necessary to clear up the case the patient's condition will prove an aid to the surgeon instead of a detriment. The usual constitutional treatment that I give these cases consists of calcium lactate and parathyroid. The injection that is used depends upon the character of discharge and the therapeutic response to the different treatments. The usual selection for it is iodine, Beck's paste, and Callot's pastes, modified.

The following exhibits are not localized pathology but represent a septic, constitutional condition, and the points of pathology that are most prominent define tissue in localized spots that is completely destroyed, and these openings are merely the exits for a vast amount of diseased tissue. Therefore an operation in most cases would mean an amputation.



Exhibit No. 1

physical condition cleared up. A radical operation followed, the ends of bone were united, and at the end of twelve months this boy was out playing with other children, seemingly well. A period of three years has elapsed and he is in good condition.



Exhibit No. 2

Patient—twelve year old boy at the time of injury. The history given by his mother shows a healthy child, good form and of normal weight. She considered him to be the healthiest of her six children up to the date of injury. The nature of accident was as follows: climbing on a moving wagon the boy's foot slipped, allowing the right leg to pass between the spokes of the revolving wheel, and causing the shaft of the leg to wedge itself against the axle, breaking and crushing the upper third of the femur. When the leg was removed from the wheel the lower fragment was protruding through the wound a distance of four inches, denuding the bone of its tissue attachments. Eight weeks after the leg was placed in a splint the boy developed chills, a cough, nose bleed, and entero-colitis stools—ten to fifteen in number during the twenty-four hours. These acute symptoms subsided and he ran a daily temperature with a cough and marked emaciation following. Laboratory reports showed an active tuberculosis with *M. tuberculosis* and *Staphylococcus*. The diagnosis of tuberculosis was made during the time of the above history when the wound at the site of the fracture was discharging profusely. The prognosis in the case was negative and those who had the care of the boy at the time gave him only a short while to live. X-Rays of the case showed no union but a marked separation of the ends of bone and pus through the entire shaft. The patient was placed upon a constitutional treatment of calcium, the wound irrigated with Dakin's solution followed by sterile water, and an injection of paste at a temperature of 104 degrees was made. This treatment was repeated daily for four months until the discharge of the bone stopped and the

This case has a history of three years standing. The patient was a fourteen year old boy when he came under my care. The case had been operated twice and X-Ray findings showed pus along the entire shaft. There were sinuses at intervals of three inches discharging along the external surface of the femur



Exhibit No. 2

of the right leg, and one on the internal surface. Patient had a temperature of from 100 to 103 degrees, was emaciated and very septic. He was given the constitutional treatment and the sinuses irrigated daily with the

hot paste injection. This treatment was continued for three months until the physical condition improved and the sinuses had stopped discharging, with the exception of one, about the middle of the femur on the external surface. A radical operation was given and as you will see, the field was laid wide open upon the external surface of the leg and the discharging bone was removed at the point where it had failed to clear up. The boy has now entirely recovered and has good use of his leg.



Exhibit No. 3

This is a very interesting case and one that seemed to indicate a complete amputation as necessary because the radical operation had failed three different times. The patient,



Exhibit No. 3

nineteen years old male, gave a history of a fall about eight years previously whereby the lower third of the femur was injured. When

osteomyelitis developed the case was operated, bone sinuses followed, and a year later he was given a second operation with the same results. A third operation followed a year later with like results and at the time the entire shaft of the femur was discharging pus.



Exhibit No. 3

The patient ran a usual history of pns cases and was finally confined to bed because his physical condition became so depleted and septic. When I took charge of the case I placed him on the constitutional and injection treatment and in four months succeeded in stopping the discharge of the shaft, giving him a good, servicable leg. No radical operation was necessary in this case.



Exhibit No. 4 Rubber tube and probe through tract.

This patient was a girl eight years old. You will see on the screen the foot of the case. I was called to treat the child for tuberculosis

There is much more that could be written upon the history of these cases but a time limit on this paper prevents elaboration.



Exhibit No. 4 Case discharged cured.



Exhibit No. 5 Case discharged with Lumbar Jacket for spinal deformity.

and have never seen a more emaciated and septic condition. It was a very pathetic case and I felt sure she could not live many more days. She had a cough, diarrhea, and a discharging sinus through the astragalus and the end of the tibia. This was the condition six months after an operation. I used the

However, the short history and the pictures will give you a sufficient insight into the character of the cases which offer such resistance to the usual curative methods.

The point which I want to emphasize is not a superficial one. It is that every case shown



Exhibit No. 5 Correction hip deformity and injection treatment.



Exhibit No. 5 Ankylosis hip, lateral cure and Osteomyelitis with fistulae.

constitutional and injection method and a year later she was one of the healthiest of children. A radical operation was unnecessary following the treatment. The child has made, apparently, a recovery which is permanent.

upon the screen and of which I have given you the history has been operated from one to three times and in every case a negative prognosis followed. It is for this reason that I have adopted the rule that unless you are certain that an operation will clear up the case, don't operate. First use the constitu-

tional and local treatment for the sinuses, and get the patient in a condition where an operation, if it proves necessary, will give you some results. In this statement I do not refer to the localized cases, because an operation will give excellent results and is the only method to adopt in the local cases, or where the pathology of the case has a definite line of demarkation. But—these chronic—septic—emaciated cases cannot be placed upon the operating table any time a surgeon may select without jeopardizing the life of the patient or an uncertainty as to the prognosis.

I claim no credit for any special treatment, and were it not for the fact that I have had these old operated cases thrust on me where by I had to do something or refuse them my services, I would not now be presenting this kind of subject for your attention.

MASTOIDECTOMY UNDER LOCAL ANESTHESIA WITH REPORT OF TWO CASES.*

By SHELTON WATKINS, Louisville.

Mastoidectomy under local anesthesia was performed the first time in 1894 by Schleich. He obtained anesthesia by infiltration of the tissues with one of the solutions that bears his name. This method was not very satisfactory in the majority of cases, due largely to failure to properly anesthetize the inner portion of the external auditory canal, the tympanic membrane and the middle ear. In 1904 Neumann discovered that these areas could be satisfactorily anesthetized by the injection of a 1 per cent solution of cocaine with a small amount of adrenalin under the periosteum of the upper wall of the osseous portion of the external canal. The Neumann injection combined with the Schleich infiltration were used with much success in a number of cities in Europe, notably in Politzer's clinic.

In recent years novocaine has been substituted for cocaine and now the latter is rarely used for injections. In some clinics preparatory to performing the radical mastoidectomy a few minims of a 20 per cent solution of cocaine are dropped into the middle ear when a perforation exists in the tympanic membrane, which is nearly always the case. This is advantageous, especially in anesthetizing the region around the orifice of the Eustachian tube, as it is not always reached by the Neumann injection. Also, the method of injection has changed somewhat. The

Schleich infiltration is rarely used today. Instead, the field of operation is circumjected with a ring of the anesthetic. This method was introduced by Hackenbruck but Braun adapted it to the mastoid.

Braun has added also another step to the technique of producing local anesthesia in mastoidectomy. In addition to the ring infiltration and the Neumann injection, he injects 2 cc. of a 2 per cent novocaine-adrenalin solution along the anterior wall of the mastoid process between it and the outer auditory canal. The solution is distributed around the entire canal and thus renders it insensitive. Braun says that in selected cases and with the aid of morphine, or morphine and scopolamine, narcosis the majority of radical operations can be performed under local anesthesia with perfect satisfaction. He states further that in opening the antrum, as in the conservative operation, the Neumann injection is not necessary and, that for simple opening of the mastoid cells, infiltration of the soft parts is sufficient.

In the operations that I am to report tonight Braun's injection along the anterior wall of the mastoid process was used. The injection of Neumann was not necessary because the operations were of the conservative type. I modified the ring infiltration of the soft tissues in a manner which, so far as I know, is new.¹ The infiltration was made around the mastoid bone somewhat in the shape of a horse shoe, one end of which extended well forward in the zygomatic region and the other below the tip. The advantages of this method are the use of less anesthetic, the elimination of injecting the side of the face in front of the ear, which is both very sensitive and quite disquieting to the patient, and the avoidance of injecting around the temporo-mandibular joint.

These cases were operated upon on the 17th and 26th of last April in the City Hospital, during my service on the visiting Ear, Nose and Throat staff.

The first case was a white woman; 37 years of age. On march 29, she said she "broke out" with a rash which was diagnosed as measles. Nine days later, on April 7, her right ear began to ache. Soon afterwards, it ruptured and a purulent discharge appeared. The pain gradually increased, spread to the mastoid region, and kept her awake at night. She was admitted to the hospital on April 14th. The next day I saw her in consultation and made a diagnosis of acute mastoiditis. X-ray films of the mastoids and a white blood cell count were requested. The former showed marked clouding of the cells

*Read before the Jefferson County Medical Society.

of the right mastoid and the leucocyte count was 19,260, of which 85 per cent were polymorphonuclears. The temperature at this time was 103° F. The general physical examination revealed a moderately advanced pulmonary tuberculosis with definite signs of activity, I tried, therefore, to avoid a mastoid operation, and on April 16, the patient was given nitrous oxide and oxygen anesthesia and the tympanic membrane incised, hoping this would establish sufficient drainage. During the night the temperature receded to almost normal, but the next day, April 17, it was 101° F., and the pain and tenderness had increased. Therefore, I decided to operate at once. Dr. H. V. Nolan was opposed to any general anesthetic, including a repetition of nitrous oxide and oxygen, so I had to use local anesthesia. I was not anxious to do it because the patient was very nervous and frightened.

One half hour before the operation a hypodermic injection of morphine sulphate gr. 1-4 and atropine sulphate gr. 1-150 was given. The anesthetic used was about 30 cc. of .5 per cent of novocaine-adrenalin solution and 2cc. of 2 per cent solution of novocaine-adrenalin. The first injection was around the mastoid bone within a radius of from 1 to 2 inches from the external auditory canal, being farthest posteriorly. The soft tissues were infiltrated down to the bone and then the needle was inserted under the periosteum I found the sub-periosteal injection unsatisfactory as the periosteum was very firmly attached to the bone. The line of injection was somewhat in the shape of a horse shoe and was carried well forward in the zygomatic region and below the tip of the process. Three separate injections of approximately 6 cc. each were made during this step. An unusually deep injection was made at the extreme tip of the mastoid to block the great and posterior auricular nerves; 8 cc. were used here. The other injections blocked branches of the small occipital and temporo-auricular nerves. Next, the Braun injection between the anterior wall of the mastoid and the outer auditory canal was made, using 2 cc. of the 2 per cent solution. This blocked the auricular branch of the vagus (Arnold's nerve) and branches of the auricular-temporalis, which supply the osseous canal.

The operation was started as soon as the injections were completed. Incision was begun at one-half inch behind and on a level with the upper border of the attachment of the auricle and carried downward beyond the tip of the mastoid. The soft tissues were incised without any pain whatever. When the periosteum

was cut, the patient complained of some pain, and 5cc. of the 5 per cent novocaine-adrenalin solution were injected under it, which rendered it insensitive. Then the periosteum was retracted with the soft tissues exposing the cortex. An opening was made through it with the perforator and enlarged with burr. Pus was found under pressure and a specimen was taken for bacteriological study. This opening was found to enter the antrum. Using the latter as a landmark the cells and overlying cortex were removed somewhat in a semi-circle. The mastoid was of the pneumatic type with large cells, especially at the tip and at base of zygoma. Pus was found throughout and the bone was soft and necrotic. Diseased cells were found over and posterior to the sigmoid sinus and a small portion of the bony wall of the latter was necrotic. This was removed and the membranous wall over an area of about one-half cm. in diameter was exposed. The latter was found intact. The diseased granulation tissue and bone were removed with curettes and ronguers. Mallet and chisel were not used. The periosteum and soft tissues were closed with cat-gut sutures and the skin with Michel clips. An opening was left above and below for drainage.

No acute pain was felt during the operation, except when the periosteum was incised, which was not severe. The patient stated afterwards that she had not suffered much and that the greatest discomfort was the "jarring," as she expressed it, which was when the bone ronguers were used. She said, also, that the post-operative dressings hurt much more than the operation.

The second case was a colored woman; 50 years of age. She was admitted to the hospital on April 9, almost in a diabetic coma. On the 22nd., of April she developed acute suppurative otitis media on the right side. The next day the tympanic membrane was incised by Dr. Otto Kress. I saw her in consultation on the 24th. Then the infection had extended to the mastoid. X-ray films showed definite clouding of the right mastoid and the white blood cell count was 12,200, of which 73 per cent were polymorphonuclears. The temperature was 100° F. While the patient's diabetic condition was much better than on admission to the hospital, she was still a poor operative risk. Dr. John W. Moore said that with the aid of insulin treatment he believed she had a fairly good chance to withstand the shock of the operation. The symptoms were getting worse and there was the danger of more serious compli-

cations. Therefore, I agreed to operate and, of course, under local anesthesia.

The anesthesia and operative technique were similar to that described for the first case. It was also necessary to separately inject under the periosteum. The mastoid was very large and of the pneumatic type with several unusually large cells, one at the knee of the sinus. The chief pathology was a softness of the bone with a thin sero-purulent discharge throughout the cells. The staphylococcus aureus bacillus was isolated from the scrapings. The patient complained of pain two or three times but said after the operation "I was more scared than hurt."

During each operation an almost continuous conversation was carried on with the patient in order to distract her thoughts.

From the preceding you will realize that both were typical cases of acute mastoiditis and that the operations were, at least, as extensive as in the average case. The duration of each was about one hour.

The first patient left the hospital three weeks following the operation and the second in nine weeks. The wound healed in the first case in eight weeks and in the second it was practically healed in eleven weeks. Recovery was, I believe, as quick as could be expected in view of the general condition of the patients.

Local anesthesia is more adapted to the radical than the conservative mastoidectomy because the latter operation is nearly always performed to relieve acute conditions while the former is to treat chronic cases, and it is more difficult to obtain local anesthesia in the region of acutely inflamed tissues. In sub-periosteal abscess cases it is, of course, not at all suited. In conditions, however, such as these two cases illustrate, and in any other in which a general anesthetic is contraindicated, or when the patient is strongly opposed to going to sleep, local anesthesia is valuable and, as a rule, is quite satisfactory. It is being used more every year for the radical operation and in selected cases I see no strong objection.

DISCUSSIONS.

A. L. Bass, Louisville: I want to congratulate Dr. Watkins on his judgment and success of his mastoid operations under local anesthesia. He spoke of using 1 per cent solutions, but did not use it himself. I would be afraid to use stronger

than 1-4 per cent cocaine solution; on the contrary I think you would get just as good a result by using 1-2 per cent of novocain, and adding adrenalin (1-1000) six drops to the ounce; as you have to use quite a bit and it is somewhat less toxic. I think that different parts of the body absorb agents with different rapidity: for instance; while in New York a chief of one of the eye clinics used 10 per cent cocaine solution for everything, if he was to do a lid or a tear sac operation he would inject 10 per cent cococain solution and while I thought he had a horseshoe in his pocket and would be scared quite a bit, I never saw him produce any toxic symptoms.

In regard to delay in healing of the wound following mastoid operation, Dr. Watkins' case made me think of one I had here about two years' ago. I operated upon a young lady for simple mastoiditis and dressed her wound for about three weeks and went out of town for about two weeks, and when I returned the wound was still open; and when I had a Wassermann run and it proved to be four plus, she was given anti-syphilitic treatment and the wound healed promptly.

Jos. D. Heitger, Louisville: During the past summer I had the good fortune to see Dr. Neumann perform several mastoidectomies under local anesthesia. The technique he used was to inject novocaine solution in four places around the mastoid. He says it is necessary to use a special hypodermic needle, that with the ordinary needle it is almost impossible to inject the solution under the periosteum. I think this was probably the main difficulty experienced by Dr. Watkins. The special needle has a tip on it which is rounded and is very much the shape of the Neumann periosteal retractor. With this needle introduction can be made directly downward to the bone, the needle is then turned and slips underneath the periosteum without the least trouble. In the operations I witnessed the chisel was used largely, and while it was not a very pleasant sight for a spectator the patient complained very little. The results of the operations were entirely satisfactory.

Octavus Dulaney, Louisville: I have performed two mastoidectomies under local anesthesia. In both instances the disease followed pneumonia. An important point is to inject a sufficient amount of novocaine one inch below the mastoid tip well under the periosteum to block the auricularis magnus nerve. The next injection should be made on a line and one and a half inches behind the upper border of the external auditory canal, in this region we find the occipitalis minor nerve.

These are the two principal points for anesthesia. An injection can be made behind the auricle on the line of incision, a needle should

always be well introduced under the periosteum.

In the two cases mentioned novocaine was used as the anesthetic, I never use cocaine. In the first case an ordinary hypodermic needle was used and it was broken during the process. The next time I procured a gold needle and had no trouble. This needle has a collar and was introduced under the periosteum easily.

One thing Dr. Watkins has shown us is that mastoid operations can be satisfactorily performed under local anesthesia. I say a patient in consultation who believed she was going to die because she could not be operated upon for mastoiditis. The physician under whose care she was had hesitated a long time, but the operation was finally performed under local anesthesia and the patient made a smooth recovery.

In the two cases I have mentioned two per cent novocaine solution was used as the local anesthetic and there was no toxic effect. In both I gave scopolamine 1-200 and morphine 1-8 grain one hour prior to beginning operation and this was repeated fifteen minutes before operation. The results were satisfactory in both cases.

The patients complained of no pain except while I was working in the antrum. It is sometimes difficult to thoroughly anesthetize the antrum by the use of novocaine.

I do not believe local anesthesia should be used for operation in cases of chronic mastoiditis. In acute cases following pneumonia, typhoid fever and other infections, local anesthesia can be applied with great advantage. It is especially indicated in acute mastoid abscesses where drainage becomes necessary.

S. G. Dabney, Louisville: I congratulate Dr. Watkins upon the successful results obtained in the two cases he has reported, and also enjoyed his description of the technique employed. I have never performed mastoidectomy under local anesthesia, therefore cannot discuss the subject from personal experience. I have used it, however, for various other operations about the auditory apparatus. I have also performed two mastoidectomies under gas and oxygen anesthesia. One was a girl of seventeen with acute nephritis, and the other a lady in the thirties in the sixth month of pregnancy in whom both ether and chloroform had previously produced severe and obstinate vomiting. I have used local anesthesia on a number of occasions for removal of the ossicles. I first used cocaine for this purpose, but more recently have employed novocaine with the addition of a small amount of adrenalin, injecting the upper portion of the auditory canal at junction of cartilage and bone, the Neumann method.

Shelton Watkins, (In closing): I wish to thank the gentlemen for their discussion.

Replying to Dr. Bass: The Wassermann was negative in both of these cases. A careful and complete general examination was made of each patient, but I did not report the details because of the time it would have required. Like Doctor Bass, I am not in favor of injecting cocaine. Novocain is satisfactory and much safer.

Replying to Dr. Heitger: Perhaps the needle I used in making the sub-periosteal injections was too large; I thought of this after the second operation. I believe, however, two other points are more important. I should have used a stronger solution of novocain, about 2 per cent, and I should have waited at least ten minutes after making the injection before beginning the operation. Had I done these two things, I believe the second injection under the periosteum would not have been necessary. Braun says that the sub-periosteal injection is unnecessary, provided a strong solution of the anesthetic, as 2 per cent novocain, is deposited over the periosteum and given from ten to fifteen minutes to be absorbed. A sufficient quantity of the anesthetic will be absorbed to produce anesthesia. I was anxious to save the patients as much time as possible on the table and, therefore, began each operation at once. I did not use the Neumann injection, because it is not necessary except for the radical operation.

Replying to Dr. Dulaney: Each patient was given a preliminary hypodermic of morphine gr. 1-4 and atropine gr. 1-150, which I considered most suitable for these cases. If the mucous membrane of the antrum is not too badly diseased, a drop of a weak solution of cocaine will quickly make numb any sensation that may be left after the Braun injection. The latter was sufficient in my cases. I did not, of course, curette the antrum but did remove some granulation tissue with forceps. In regard to the type of operation in which local anesthesia is better suited, I will refer to Neumann, Braun and other authorities who advocate it more for the radical than the conservative operation, for the reasons given in my paper. Local is the anesthesia of choice in many European clinics for the radical operation.

Replying to Dr. Dabney: General anesthesia can, undoubtedly, be used in most cases of mastoidectomy for acute suppurative mastoiditis. In each of my cases the medical consultant advised against a general anesthetic. Both patients were, indeed, very poor operative risks, especially the diabetic case, and I believe general anesthesia would have increased the danger. The first patient did not react well after taking nitrous oxide and oxygen for the incision of the tympanic membrane. The second patient was told she could have "gas" and oxygen for a few minutes, should the pain become severe, but she

did not ask for it. I consider it better to use local anesthesia in cases like these than take the risk from general anesthesia. The idea of the Neumann injection was first conceived by Gomperz but he used Schleich's solution, which did not have enough cocaine in it to overcome the pain caused by the .2 per cent solution of sodium chloride. Neumann used physiological salt solution as the medium for the anesthetic and obtained complete success. As Doctor Dabney said, this method of injecting the outer canal was first used for removing the malleus and incus. Later its use was extended to the radical operation.

A CASE OF ARTERIOSCLEROTIC PSEUDO-UREMIA.*

By FRITZ C. ASKENSTEDT, Louisville.

Mr. P., insurance agent, 51 years of age, of average height and weight, was referred to me by Dr. Vance Rawson, at that location in Danville, Ky. Some years before, the patient had had pneumonia, abscess of the rectum, and more recently chills and fever. Otherwise he considered himself in good health until a year before he consulted me. He complained of mild headaches in right temple or one or the other side of the occiput; was rather unsteady in walking; urination was frequent and urgent; passing a larger amount of urine during the night than during the day. Vision was impaired during the last six months. Sometimes he felt nauseated. Some dyspnea was experienced on ascending stairs. Memory was failing, and at times he felt depressed and tearful.

Physical examination; Vision of right eye 20-100, of left 20-70. Accommodation of pupils normal. No nystagmus. Patellar reflexes normal. Co-ordination of upper extremities normal. No Romberg sign, Pulse 84, regular. Blood pressures 220-140. Radial and temporal arteries soft. Heart slightly enlarged, with systolic mitral and aortic murmurs of moderate intensity, second aortic was accentuated. A somewhat louder systolic murmur was heard over innominate artery. Liver dullness normal. Spleen and kidneys not palpable. No rigidity or tenderness in abdomen. Epigastric and abdominal reflexes absent; Right cremasteric normal, left, absent. The spines of fourth cervical and of second thoracic vertebrae somewhat tender to pressure. Prostate moderately enlarged, the left more so. CO₂ of alveolar air 5.8 per cent. Phenolsulphonphthalein test for kidney function showed the stain in urine in 32 1-2 min-

utes; during the first hour 7 1-2 per cent was excreted, during the second 15 per cent—total 22 1-2. Urine had a sp. gr. of 1008 1-2, normal acidity, was unusually free from indican and glycuronates, and no sugar was present. Urea was 0.9 per cent, ammonia and uric acid in normal proportions. There was no serum albumin, but there were a few granular casts, and some prostatic fluid and spermatozoa, probably expelled during my examination of the prostate. (This examination was made five year ago, at a time when no laboratory tests for any of the rest-N substances in the blood were made in Louisville, and before I knew anything of Volhard's water test.) Diagnosis: Arteriosclerosis, with thrombosis of the brain and sclerosis of the kidneys.

About four weeks after the examination he left my office feeling as usual, took a street car, which carried him to about two squares from his boarding place. On leaving the car he began to grow dizzy, his eyes became staring, according to the statement of his wife, who accompanied him, and he barely managed to walk home. On entering the house he was seized with convulsions and lapsed into unconsciousness. When I arrived, one hour later (at 1 p.m.), he was found completely unconscious, with right-sided hemiplegia, both eyes turned to the left, and pupils contracted. There was no visible facial paralysis, but in his state of complete unconsciousness this may have been overlooked. Face was red, but not cyanosed; there was a tracheal rattling without cough; breathing both abdominal and thoracic, irregular, with periods of apnoea lasting about ten seconds, though it was not the typical Cheyne-Stokes. Every five to ten minutes the unparalyzed side was violently agitated with convulsions, a bloody saliva dribbled from his mouth, but there were no other involuntary discharges. Attempts between the convulsive paroxysms to make the patient swallow some fluid were futile. Pulse-rate, taken between the attacks, 150, regular. Assuming that we had to deal with a pontine apoplexy I left the patient without administering any medicine, telling his wife he could not live another hour. Soon thereafter convulsions ceased and consciousness gradually returned. At 9 p.m., of the same day I found this patient very restless, craving a large quantity of water, and somewhat dazed, but conscious, properly recognizing his surroundings. The pupils were now rather dilated; he suffered no pain and no paralysis, even being able to whistle a low note. He spent a very restless night until 5 a.m., then slept until 7:15 a.m. At my next visit, three hours later, he was free from rest-

*Read before the Jefferson County Medical Society.

lessness and pain, and with a decided appetite for food. His face was flushed; pulse 100, slightly irregular; respiration 18, regular; urination free; mentality good, but during the conversation he broke down and cried. He remembered leaving the street car and becoming dizzy, but nothing more before 7:15 that morning. He never had a similar attack before and never since.

In eleven days he was back in my office. He reported having been sleeping and eating well, freedom from vertigo, but the right leg seemed somewhat heavier than the left, making walking slightly more difficult. Blood pressures were 263-166.

He remained under my observation for another month, during which time he complained of much headache, occasional vertigo, pain and numbness in legs, especially the right, but his appetite and digestion remained good, and physical examinations revealed no perceptible alteration in objective signs.

Six weeks after returing home he died. The preceding symptoms had been: severe headaches, flushed face, loss of appetite, hard and rapid but not stertorous breathing, and 58 hours before death he fell into a stupor. His wife reported that there had been no urinous or other bad odor either to his breath or body at any time, except the last twenty-four hours before the end.

After a closer study of the remarkable manifestations and course of this case, I decided upon a diagnosis of arterio-sclerotic pseudo-uremia. This term was used first by Professor Volhard, of Halle, to designate a spasmodic contraction of the blood-vessels of a limited area of the brain, occurring in cases of general arteriosclerosis. The more than occasional occurrence of albumin and casts in the urine of these patients had led earlier observers to regard this transient cerebral phenomenon as a result of uremia. But Volhard's extensive researches in the diseases of the kidney have shown that these vascular crises, although sometimes associated with a true uremia, are independent of it, hence the designation pseudo-uremia. The actual demonstration of an arterial or capillary spasm in the brain of a human subject is still left to future research, but spasms of the central artery of the retina, with which the brain shares its blood supply and vasomotor system, has been so frequently observed with the ophthalmoscope that it has now become an accepted fact among oculists, and the recent discovery of independent vasomotor action of the capillaries elsewhere lends strong support to the above hypothesis of cerebral vascular contraction. This hypothesis is now generally accepted in central Europe. In the English

speaking countries its progress is more gradual. The late Professor Osler (Albutt's System, edition 2, vi, 627.) states that in certain stages of arteriosclerosis arteries are very prone to spasms. Russell (Brit. Med. Journ. Oct. 16, 1909.) in a paper on "Intermittent Closing of Cerebral Arteries," describes loss of brain power (temporary paralysis) from intermittent closing of cerebral arteries, this closing being partial or complete. Further references would take us too far astray from the topic of this paper.

Clinically the condition is recognized by the very transient appearance of the symptoms produced, which may be psychic affecting the conduct of the patient, or local manifested by pain, nausea, vertigo, spasms or paralyses. Of course, we must keep in mind that these patients with cerebral arteriosclerosis are more liable to the usual complications, thrombosis and apoplexy, than to vascular spasms.

The central point of interest in the case under consideration is the transient attack of convulsions and paralysis. In similar cases our prognosis and treatment is hinged, so to speak, upon our conception of the underlying pathology. Apoplexy, thrombosis, arterial spasm, each demands a different procedure. Based upon symptomatology a differentiation between these pathological states, with our present defective knowledge, will too often prove a broken reed to lean upon, as it did in my case, but this should only spur us on to a closer study of the individual cases.

In the diagnosis of the case before us we can all agree to eliminate apoplexy on account of the very rapid recovery from the apparently critical seizure. As to thrombosis, embolism, and arterial spasms, opinions may vary.

An attempt at localization of the brain area involved may prove helpful in arriving at a correct diagnosis.

The first symptom manifested was vertigo. This suggests the vestibular branch of the auditory nerve, whose origin is in the caudal portion of the pons, with associated fibers extending into the cerebellum. The labored irregular breathing, while not a typical Cheyne-Stokes, directs our attention to the respiratory center at the floor of the fourth ventricle. A pulse-rate of 150 between convulsive seizures seems too rapid to be wholly accounted for by the muscular contractions, especially as they were limited to one side. Disregarding the hypothetical cardiac center supposed to be located also at the floor of the fourth ventricle, we still have in this region the nucleus of the pneumogastric nerve, inhibiting cardiac excitation. Inability to swallow, if this be of any significance in a patient already comatose,

suggests paralysis of the hypoglossal nerve, whose nucleus lies likewise in the medullary portion of the floor of the fourth ventricle, while the contracted pupils and the conjugate deviation of the eyes to left point to an irritation of the left floor of the ventricle in the uppermost pontine portion. To produce a hemiplegia in this section the lesion must extend to the pyramidal tracts, which are situated beneath the ventral surface of the pons and the medulla. It would seem, therefore, that the lesion must have extended across the entire or almost the entire transverse section of the medulla and perhaps the pons, where symptoms of irritation rather than paralysis were evidenced. The Babinski-Nageotte syndrome—crossed hemiplegia, myosis, hemiasynergia—which is caused by a blocking of one of the vertebral arteries, bears strong resemblance in some respects to the case in question. That a sudden anemia of one side of the medulla or pons should lead to a compensatory congestion of the brain and face, and an irritation intense enough to bring on general convulsions does not seem improbable, since general convulsions sometimes occur in pontine apoplexy, the immediate cause here being an anemia from pressure. It would be far too speculative to attempt to designate the branch or branches of the vertebral or basilar artery at fault, but the area involved seems too large to be supplied by a single branch.

Opposed to a diagnosis of embolism is the fact that this patient had never shown any evidence, during my observation, of embolic infarcts, and inasmuch as the branches of the basilar or of the vertebral artery supplying the pons and the medulla are comparatively very small and project at almost a right angle to the main vessel, embolism of these parts must always remain a rarity.

The exclusion of thrombosis offers greater difficulty. Undoubtedly thrombosis of a number of arteries of the brain was going on at the same time, but bearing in mind the rather large area involved, the scant anastomoses of the arteries of the brain, and that recovery from bulbar paralysis is a rare exception, it seems to me highly improbable that in infarct of the extent indicated could permit of an almost complete recovery of all bulbar symptoms. Inasmuch as the ganglion cells are known not to survive complete anemia for a longer period than eight minutes, we must conclude that the obstruction to the blood flow was only partial or intermittent, the latter suggested by the frequent recurrences of convulsions. Intermittency of the obstruction can find only one rational explanation, repeated vascular spasms.

DISCUSSION

Emmet F. Horine, Louisville: The interesting case Dr. Askenstedt has reported belongs to that group of cerebral crises that we occasionally see in arteriosclerosis. As to the exact causation, there are two schools, one adhering to the explanation Dr. Askenstedt has mentioned, namely, intermittent contraction of the vessels in the brain leading to temporary pontine or other involvement with relaxation within a short time and subsidence of the paralysis and other signs. The other conception is based upon the fact that there is considerable evidence to the effect that the vessels of the brain do not have an efficient vaso-motor nerve supply. Therefore these conditions must be explained along another line, namely, that there is in the individual considerable atheroma or sclerosis of the vessels, the sclerosis being marked and ordinarily just barely capable of carrying on an adequate circulation but at times, due perhaps to changes in blood pressure, incapable of carrying on an efficient circulation. In other words, that we have a borderland sufficiency of the circulation. As to which is the true explanation, of course we can only theorize, but judging from the evidence which seems to show that we have not an efficient vaso-motor system in the arteries of the brain, it would seem that the theory of borderland sufficiency of the cerebral circulation would be the better one.

F. C. Askenstedt, (In closing): In cases such as the one reported there is some question whether the symptoms are due to arterial degeneration or to spasm alone. I believe it is the general understanding among those who have recently made considerable research and investigation that both factors are present. In all cases reported there was arteriosclerosis, and it is supposed that this has made the vasomotor nerves of the brain unusually susceptible to irritation, and the spasms may be accounted for in that way. Dr. Wolfe and other oculists will agree that spasms occasionally occur in the central artery of the retina, and may have seen this a number of times with the ophthalmoscope. When we remember that the central artery of the retina is supplied by the same nerve ganglion—the superior cervical sympathetic which sends branches directly through the skull, and, that it gets its blood supply through the same artery as the brain, the analogy will be easily understood. I know of no other way to account for the sudden change in the clinical manifestations except by intermittent arterial spasms. This man developed convulsions at twelve o'clock, and at two o'clock the spasms and paralysis had ceased—a duration of only two hours. From the extent of the paralysis it would seem that the whole, or almost the whole, transverse section of the pons or medulla must have been involved.

FOUR INTERESTING NEUROLOGICAL CASES.*

By SAM B. HAYS, Lakeland.

The following four cases are interesting neurologic patients at the Central State Hospital.

V. S., a white man about forty-five years old, who has trouble walking straight and sitting and standing in repose. During sleep he is not bothered. The condition is one of involuntary twitching of the skeletal muscles. He has had it for years and it has been steadily progressing. Where he can gain a good foothold he never falls but some steps are so spastic that if he treads on a slippery spot it is not easy for him to recover his balance. The movements are choreiform and irregular in this case are wider in excursion than acute chorea, commonly known as St. Vitus Dance. Besides the upper and lower limbs the supporting muscles of the back are seriously affected in this case. When walking he places his hands on his hips to help steady his back. When he writes fast the pencil may suddenly be pushed several inches from the body of the word. His tendon reflexes are exaggerated but there is no ankle clonus or Babinski or Oppenheim sign. His speech is clipped or slurred making it slow in delivery. The progress is insidious and slow and mild in some. Two patients here have progressed rapidly and extensively while others have mild twitchings only in years standing. The name of Huntington's chorea is given to it from one of its early describers. It is also called chronic chorea and is generally accepted as hereditary. The pathology is in the bulbo-thalamo-cerebral extensions of the cerebellar pathways. There is no cure for it and practically no treatment.

While we are on the motor pathways, let us present two cases of ascending progressive ataxia, both hereditary and starting in early adult life. The first of these two forms to appear is the family ataxia (of Friedreich), can be recognized at puberty by absence of the patellar and other tendon reflexes, absent clonus and incoordination of the extremities. It is therefore, a spinal cord affection and the process is one of sclerosis and atrophy. The consequent muscle trophy gives the contractures that deform the feet. This boy has a brother younger that is beginning to show the ataxic gait. His speech and mentality is normal. The other near type shows the ascending, progressive ataxia but he has ankle clonus, exaggerated tendon reflexes, rolls his head from side to side and one speaking shows

emotion of humor, i.e., grins and laughs on his words. This man's spinal cord is functioning for his sphincters are over tense, there are no contractions of the feet but they have a tendency to drop. The expression is too apathetic for the mentality. Optic atrophy is common in this type and nystagmus fairly so, suggesting at first insular or disementiated sclerosis. This case has neither atrophy nor nystagmus but is nerve deaf, having no bone conduction. This disease is one from cerebellar atrophy and is called the Marie type of hereditary ataxia. It has been well stated that Friedreich's is a cord and Marie's type a cerebellar affection. Both of these family ataxias are bed-ridden.

The fourth and last case is a common neurological but his picture presents differently. Every doctor can tell a case of paralysis, agitated or Parkinson's disease in its typical form by the pill-rolling hand tremor blank facial expression and posture of slightly forward of the perpendicular. This case here, however, has myotonia or muscular rigidity instead of the tremor and his jaw is pulled down by the anterior neck muscles, giving his expression the risus sardonius, or devil's grin. His mimetic face muscles are partially paralyzed as is the glosso-pharyngeal group.

His soft palate hangs like a wet curtain and his saliva drips from his open mouth. His gait is distinctive of his type. His posture is standing leaning forward noticeably and when he starts to walk, seeking his center of gravity, he gathers speed from the slow step to a run. He has to plan to navigate his distance to a post, tree or other object to catch and stop himself and then rest before the next relay. He also has to force his food to the superior constrictor of the pharynx before he can swallow. His myotonia is so marked that it takes him two minutes to get up from the supine position to standing.

OF WHAT DOES MODERN CARE AND TREATMENT FOR THE INSANE CONSIST?*

By WALTER A. JILLSON, Lakeland.

The answer to the inquiry which is propounded in the title to this paper may be summed up at the start by saying that modern care and treatment requires that those who, of necessity, must find their way into an institution for the insane be furnished with the comforts and conveniences of a modern hospital as well as custodial oversight and protection against anti-social propensities. No longer is

*Read before the Jefferson County Medical Society.

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it sufficient to provide custodial care alone and no longer is it right or proper that such unfortunate people should be immured in a madhouse or asylum with no other provision for their welfare than what is connoted by such ancient terms. Instead, it is a part of modern practice to develop the hospital idea in fact as well as in name and to regard a mentally disabled person as a patient instead of as an inmate.

The object of all hospital care, whether for mental or for physical disease, is to restore disabled persons if possible and if not possible to restore them completely then to rehabilitate them as much as may be possible by application of such ideas and with such apparatus and equipment as are available to modern medical science. To be sure, there are certain creature comforts which must be afforded in any institution conducted along the lines of modern humanitarian thought and practice. They must, of course, be properly housed in safe and sanitary buildings. They must be fed food that is nourishing, wholesome, nutritious and well balanced and they must be clothed with suitable raiment. Mentally afflicted people also must be protected on the one hand against designing or thoughtless and inconsiderate people in society and on the other hand society must be protected against the anti-social acts of the patient himself. All of this, however, is but a part of that which the asylum idea has always carried with it even though it be to the discredit of some institutions that these fundamental things have not been provided as well or as liberally as needs have indicated.

To be a hospital, however, something more is implied than furnishing mere creature comforts and, though most institutions caring for the insane have, during the past decade or so, changed their name from asylum to hospital, many have not, in fact, materially changed the character of the care furnished those who reside within their walls.

Amongst the things which a modern institution caring for the insane must provide is medical care. There should be a staff adequate as to numbers and competent as to special ability whose duty it is to gain an intimate knowledge of patients and treat them as carefully and conscientiously as would the physicians on the staff of a well organized general hospital. There is a commonly erroneous impression amongst physicians at large as well as amongst laymen that there is very little physical illness requiring attention amongst the insane. Not only is this impression erroneous but it has, in the past, led to very disastrous results both to the patients and to all others concerned. On the

other hand there has been a tendency for institutional physicians of the old regime to concentrate too much thought on the physical needs of their patients without enough thought as to their mental symptoms.

A modern insane hospital insists that each patient shall be thoroughly examined as a prelude to treatment. Examinations must be physical, mental and special. Provision must be made for special examinations not only by those trained in psychiatry but by dentists, eye, ear, nose, and throat specialists, clinical laboratory tests at least, and X-Ray diagnostic and treatment work when indicated.

Dental work must be at least prophylactic and operative and prosthetic work must be available for special cases where indicated. It is highly desirable that dental X-Ray examinations be made of every patient and such treatment instituted as is indicated by pathological reports. Eye, ear, nose, and throat examinations can do much to reveal and correct local foci of infection which have debilitating and irritating effects on the whole organism. The presbyope can be made happier and more useful by prescription of reading glasses. Every physician knows the good which comes to his patients from the correction of refractive errors and what is true with regard to the sane is equally true with regard to those suitable among the insane. Those deafened may be materially relieved by such a simple procedure as the removal of impacted cerumen, and often the entire course and trend of auditory hallucinosis is modified by such a simple operation.

It is unfair to any person within the walls of an insane hospital in these days and times that the diagnosis of his case be left obscure by failure to obtain the results of a blood Wassermann or, suspecting cerebrospinal syphilis to neglect to have the laboratory report of a spinal fluid examination.

It is not enough in making a physical examination for the physician to put a stethoscope over the vital thoracic organs but it is equally as important that the blood pressure be tested under various conditions and that the eye grounds be examined with an ophthalmoscope.

Many insane persons are so apathetic, sluggish and unco-operative as to make it almost impossible to diagnose tuberculosis by ordinary means and here it is that the X-Ray equipment should be available to reveal chest conditions which ought to be handled clinically as equivalent to tuberculosis even though positive diagnosis becomes impossible.

Mental examinations are not adequate if they consist of mere cursory inquiries into certain unimportant details as to the previous

life history of a patient but they must comprise thorough inquiries into all possible phases of mental activity which will reveal wherein and whereby a deranged person may be afflicted. There is nothing mystical or magical about the procedure in the mental examination of a patient. General practitioners are deficient in this ability not because they are in any way inferior to specialists in mental diseases but because they have not taken the time or opportunity to perfect themselves in such examination work. It goes without saying that a proper system of records and reports must be maintained if examination and treatment work in a hospital be well organized.

It is almost axiomatic to predicate that the modern insane hospital should have an adequate and competent nursing and attendant personnel. Such personnel must be and function as something more than guards and keepers. They must have even more patience and ability along some lines than are required as qualifications of nurses entering training in a general hospital. Their duties at best are long and arduous, their patients subject to every conceivable sort of erratic act and thought, and the joy which good nurses or attendants can shed on the wards entrusted to their care must depend upon a personality which is temperamentally altruistic.

Higher standards of personality are required in the employees of a modern insane hospital today than were the rule a quarter of a century ago. While it is true that special psychiatric training schools have been unable to recruit trainees as well as before the War, they are little if any different in this respect from the training schools of general hospitals. Some training schools, including our own, have of necessity had to flounder by the way-side incidental to war time demands and it has not yet been practicable for them to resume operation, but the trend of thought and practice is in the right direction and it is to be hoped that such training schools will be revived and rejuvenated as economic conditions make such practicable.

A modern hospital caring for the insane should be prepared to furnish hydro therapy, physiotherapy, electrotherapy, and heliotherapy.

Hydrotherapy, in particular, has found some of its warmest advocates amongst physicians in these hospitals. The continuous neutral tub bath, when properly prescribed and administered, has far more beneficial sedative effect without injurious results than has mechanical or drug restraint. The same is true of hot and cold packs and other general and local therapeutic applications of water.

Elaborate equipment is unnecessary but adequate and competent personnel is necessary and highly important in the administration of these forms of treatment.

No sane person can be happy for long, even surrounded by the luxuries of a comfortable home, if deprived of the privilege of industry. To be forced to sit about day in and day out with nothing to occupy the hands in the form of interesting labor is as bad for the insane as for the sane. These facts were recognized early by those who have had much to do with advancing the cause of modern humanitarian care of the insane. Occupational Therapy, or hygienic occupation or whatever term you choose to apply to the thought under consideration, has grown to such an extent in every institution caring for the insane that none of them could be operated successfully without the labor furnished by patient inmates unless employee personnel were to be increased by twice or thrice as many as are usually employed. It is not only to the economic advantage of the institution that all patients be developed industrially in such ways as may be possible but, what is of paramount importance, is that the patients themselves benefit by it. There is no patient so demented, deteriorated or depraved, either from birth or by acquired misfortune, who can not be made happier and more useful to society by being taught to be industrious. To teach an idiot such a simple task as to tie his own shoe laces relieves another of that burden by just so much. From such simple occupational therapy tasks for an idiot up to the most complicated manual and mental tasks for those who have demented but little if any is an object of this phase of institutional activity which is wisely developed to the limit of practicability in every institution for the insane. Perhaps the task may be diversional and merely consist of playing games, physical exercise or attending dances or entertainments, or it may be habit training, educational, pre-vocational or vocational. All such efforts, however, lead to the regeneration and rehabilitation of the individual and never should have in view the exploration of the labor of the patient.

It is not enough to do everything possible within the walls of an institution to promote the recovery or rehabilitation of patients. To pave the way for his home-going only to find by chance, that he has no proper environment to go to is unwise and uneconomical. This extramural activity must be looked after by social service workers or agents of the institutions who not only contact the previous environment of the patient and ascertain de-

tailed history as to facts and events which led up to his admission but pave the way for home-going and follow up such home-going with paternalistic after-care. Such social service workers are also missionaries of the institutions in the fields to which they go and can do much to allay the unreasonable prejudice and misconception which has existed for generations with regard to the character of the hospital and the nature of the care afforded within it.

The social burden throughout the world from insanity as a cause is excessive. It is beside the question to speculate, as is often done, as to whether or not insanity is on the increase. Even if such were not so, we know that it is better recognized and less frequently temporized with than formerly and this is as it should be and is quite in line with other scientific endeavor which seeks to better living conditions of the human race. It is as fool-hardy to keep an insane person needing institutional care at home as it would be to refuse operation in a general hospital to a person afflicted with repeated attacks of acute appendicitis and there is or should be no more stigma attached to the hospitalization of such a mentally afflicted person than there is for one afflicted with physical disease.

No modern hospital caring for the insane is fulfilling its highest duty which does not provide laboratory and other facilities for research work into the causes of the various types of mental diseases.

Because of the anti-social tendencies of so many mental cases, it is highly important that each patient be given careful consideration in staff conferences which should be held daily. At such conferences, cases must be considered not only as to diagnosis but as to suitability for return to community life and advice should be available as to what and how pitfalls can be avoided.

The insane are afflicted with tuberculosis quite as much if not more than the sane and a modern hospital must provide for the special care of such physical illness both for disturbed patients requiring custodial care and for quiet, harmless, debilitated types.

There should be all the facilities of a modern general hospital for rendering treatment, such as operating rooms and special treatment rooms. There should be proper facilities for the classification and segregation of patients as to different degrees of conduct disturbance in their mental illness. It ought not to be necessary to care for the feeble-minded and epileptic in hospitals for the frankly insane. Special institutions should be available for these special classes. While it is possible, in private institutions, to provide luxurious

comforts for those of higher social station in life who are able to afford such care, nevertheless, such comforts and accommodations cannot be afforded in a public institution for mental cases. Behavioristic symptoms must be the chief guide in classification and segregation.

It has been a common impression in times past that the insane, as a class, require little more than asylum care because such a large number of them have been regarded as hopeless. If members of the medical profession will exert their influence far and wide to allay or correct this wrong idea, they will be able to do much to make facilities available such as have been outlined. Thus many more persons could be restored to mental health and yet more of those who could not fully recover could be returned to places in society where they might lead useful lives under trained supervision.

WHAT OUR SOCIAL SERVICE DEPARTMENT IS DOING.*

By M. J. SHEALEY, Ass't Superintendent
Central State Hospital, Louisville.

During recent years a considerable amount of thought has been given to an exact definition of social case work and to the relation of the various types of social case work to one another. As a result of this thought the tendency seems to be to place the emphasis upon one method for all phases of case work. This trend is indicated by the present curricula of schools of social work which give one general course in case work methods.

Special courses are given as electives in the case work with dependent children, case work with delinquents, case work with medical problems, case work with psychiatric problems, etc.

What is social case work? One writer has aptly expressed it as "the influencing of the conduct or activities of an individual in regard to any matters wherein he relates himself to others." It is not the intention here to discuss the definitions of case work or its variations, but it is quoted to show that the emphasis is placed upon the individual and his human relationships.

Psychiatric social work with which we are dealing is one of the most recent developments in the specialized fields of social case work. Individuals are dealt with in this field who, because of inability to make adequate mental or emotional adjustments are in need of medical study and treatment by a Psychiatrist.

*Read before the Jefferson County Medical Society.

These individuals may suffer with frank mental diseases, a mental deficiency, or they may come in the large class of borderline or personality problem cases. The Psychiatrist social worker carries on intensive case work with cases of those types and thus supplements the Psychiatrist's examination and treatment by means of securing social history of the patient's behavior and by means of aiding the patient in making his social adjustments. She always works from within the psychiatric clinic or hospital with that as her approach to her patients and their environment. Her first consideration should be the psychiatrist's diagnosis and the patient's behaviour.

Without the actual clinical experience which psychiatric social workers get in their work it is difficult for case workers in other fields to gain a practical working knowledge of personality problems or as "Miss Jarret" of the Boston Psychopathic Hospital calls it "the psychiatric point of view," the habitual recognition of mental causes of conduct together with some knowledge of the nature of the mental processes that may cause conduct disorder.

With a view of obtaining social histories on patients in this hospital, work of social service nature was undertaken about three years ago. At that time one worker was employed and she was sent out on cases where a special report was needed to either corroborate or negate some statements which had been made about patient and which had some especial bearing upon the advisability of his leaving the hospital or the possibility of his becoming a menace in the neighborhood.

As time went on the problem grew. The institution was becoming crowded and in order to do something to relieve the congested conditions it became necessary to take under advisement the paroling of those patients who because of their length of residence and their adjustment to hospital routine had become institutionalized, exhibiting no conduct disturbances and living a life of daily sameness, requiring little if any degree of supervision.

With the growth of the problem came the necessity for more social workers and another was added to the list. Then the work began to take on a more natural form and the newer admissions were given more attention in the form of histories and both the hospital and patients were aided very materially by such reports; the hospital by being able from the facts obtained by the social worker to allow patient certain privileges wherein he could help work out his mental problem in the form of some light occupation about the hospital, also go about with a certain feeling of free-

dom from restraint and thereby enjoy a more homelike existence (Apropos of this, a short time ago the remark was made to me by a visitor from Louisville that officials at Lakeland were criticized for leaving so many patients running around the grounds "loose" as he expressed it. I told him that such a criticism was the highest compliment he could have paid us and that it was our aim to increase our ground privilege list. Furthermore, I asked him if he had ever heard or known of any of those critics at any time upon their visits here of ever having been molested or insulted by those "loose" patients.)

Can the same number of visitors who frequent our grounds yearly pass along the streets in the city with the same degree of safety from insult and molestation? For your answer read the daily newspapers.

When you see a large number of patients going about any State hospital grounds unattended and where no acts of violence either to themselves or to others are committed by the patients so entrusted, you know that such a hospital has made a study of each and every patient, that he is no longer a case number, but an individual for whose interest everyone in the hospital is working. It does not require any great intelligence or effort to put a patient in a ward and keep him locked there. Such privileges were made possible in a great many cases by the social service report which had thrown more light upon their ante-hospital lives.

Another aspect of social work is the contact with the family of patient, his physician, the Judge and other officials, the explanation to them of what is being done for the patient, dispelling from their minds the old idea that State hospitals are bastilles, places for custodial care "where all who enter abandon all hope." The workers advise them to write to the hospital frequently about their relatives and this answers a double purpose as it keeps patients' families informed of their condition and also keeps the hospital in touch with the address of relatives in case of sickness or death of a patient.

The home conditions is another element that often plays an important part in the life of a patient and many a case would in the past leave the hospital to return to the same environments that was the exact cause of his mental trouble. Our social reports now cover the environment and home conditions of patients and social workers seek the home of some other relative or friend which is more suitable or congenial for the patient and he is paroled to that home.

We have at this institution at times patients who because of their inability to make

an adjustment at home or because they have no friends or relatives to care for them, who in our opinion can make an adjustment on the outside, in suitable occupation and in order to rehabilitate them, our social worker visits the factories or other places of employment wherein patient is adapted for the kind of work which is obtainable at such place. His condition is explained to the employer so that patient will not go out from the hospital under a handicap. A boarding house and suitable environment is obtained for him and he is paroled and thereby becomes self-supporting and relieves the state of the burden of caring for him.

Another phase of social work that is of interest is the keeping in touch with patients after they are paroled from the hospital. The social worker is instructed that when she goes into a County or community, to investigate the environment and also interview patient who has been paroled within the previous six months in order to ascertain his mental condition and what adjustment he is making. A report is made upon his condition and if in the opinion of the hospital authorities he is not getting along as well as he should, his relatives are advised to return him to the hospital. Again another duty that devolves upon the social worker is the location of patients who have escaped from this institution and when they are located the hospital authorities are notified, patient is sent for and returned to the hospital. If, from the social service investigation it is learned that during patient's residence outside of the institution, while on escape, he is getting along comfortably well, is making a good adjustment and is not a menace in the community he is paroled within a short time and the status of escape is thereby removed from him.

In many cases also it has become necessary for our social service department to obtain for ex-service men at this institution affidavits concerning their conduct prior to or after their return from the army service. In a great many instances owing to the indifference on the part of relatives and friends, claims for compensation for many of these men were not forthcoming. Many an ex-service man at this institution is now receiving compensation for disability who if it had not been for these affidavits would not be obtaining any remuneration whatsoever.

The present staff of social workers is made up of three and it is the intention of the institution to increase this number as soon as funds are available.

Of the present number of patients in the hospital there have been social service histories obtained on eight hundred. As yet ow-

ing to the enormity of the task the surface only has been scratched. It is the object and earnest desire of the hospital authorities at some future date to establish in communities mental clinics where a psychiatrist can devote one day a week and thereby afford the physicians an opportunity to have any case that needs examination an opportunity to interview the psychiatrist and turn his problem over to him, in this way, a great many cases who are now out in the community and who are a constant menace will be taken into custody and thereby given an opportunity to better his condition and also receive proper medical and institutional care, of which he is in need. Moreover at these clinics a great many cases can be examined and advice given as to the placing them in suitable environment and also at some task that will be more to their mental make-up. In a great many instances cases that now come to the institution can be given a chance in the community and thereby helped to a marked extent to keep the census of the State hospital down to a minimum.

There is facing the State of Kentucky at the present time a great problem of housing the vast number of patients which it has under its supervision and if by our efforts through our social service department that a great number of these patients can be restored to the community with a degree of safety and with a feeling that their condition will be benefitted and that they will be able to make a proper adjustment it will thereby relieve the State of a great part of this burden in caring for them.

OCCUPATIONAL THERAPY.*

By F. G. ELLIS, Lakeland.

Occupational Therapy was known to the Ancient Greeks, and an interesting and lengthy paper might easily be written showing the many phrases of it's application by the Greek's then it lapsed into a state of innocuous desuetude and disappeared for Centuries (when madmen were chained and scourged in dungeons) to come again to prominence, and in these latter days it has advanced to the front rapidly as a means of modern treatment of the insane.

We are all of us perhaps agreed upon the doctrine that occupational therapy is one of the most potent and helpful adjuncts in the line of treatment for private or institutional patients.

The management of this institution insists that occupational therapy must be a large part of the treatment of all cases in which it is

applicable, always having due regard for the patient's limitations both mental and physical.

This means that every individual is given some task, something that will be useful and helpful to him or her, the simplest operation that will center his interest, as unraveling burlap or tearing rags into strips, thence advance if possible; the work done by patients ranging from the simplest task on up to the most complicated.

At this hospital each individual is, as stated previously, set at an employment that is suited to his or her mental and physical condition, and the work prescribed for a patient ranges from the simplest (as winding up thread into a ball, and pushing a floor rubber on the wards) to high grade clerical work, skillful farming, gardening, dairying, weaving, blacksmithing, laundrying, baking, cooking, care of live stock, and orchard and vineyard work, and high grade mechanical operations and designs.

Work is done on the wards, grounds, farms and at work shops, and is also taught by skilled people in our Industrial Department devoted to developing the patient's aptitude and skill. Patients are making many useful and beautiful articles, as: tables, chairs, furniture, rugs, pottery, baskets, quilting, weaving sewing, celluloid work, repair wood work, carpentry, cabinet making, wooden toys and ornaments, painting, knitted work, leather work, house painting, baking and laundrying.

Two or three of the wards have an Instructor upon them busy every day in the year, and patients are taught basket-making, weaving, fancy needle work, etc., and many other useful lessons are given them.

Selected patients are passed to our colony and farms, thus living entirely in the open air while employed as farmers, dairymen, etc., gaining greatly mentally and physically.

A big bunch of essentially incurable cases is dumped into State Institutions throughout the United States every year, such as brain tumor, senile psychosis, general paralysis, cerebral syphilis, paranoids, imbecility, idiocy and epilepsy. To get the best results in all these and some other conditions is a tremendous undertaking.

We classify our patients, reclassifying them whenever it is proper, and endeavor in every way to fit the patient to some one or more tasks that are pleasant for him or her to do and which will make a true occupational therapy showing in his or her case.

Therefore, we make haste slowly, closely looking for those things that agree with him and that will build up energy if needed or

eliminate it if excessive. When the patient does his work well, is happy at it and improved by it, it is a beautiful result to get. Surely he then is a long way from the whip and lash, the chain and dungeon of yesteryear's times.

Occupational Therapy is of very high value in treatment of insanity, and is of very special value in selected cases such as Dementia Praecox.

In the larger sense, we think of occupational therapy as a development of a branch of medicine, and so it is: and while medicine and surgery will always hold a prime and positive place in the treatment of the insane, in the future, all treatment will be based very largely upon three cardinal points: Industrial, Educational and Recreational.

The application of employment as a therapy is not as easy as it appears, and to fit patient and occupation together requires careful observation and consideration. Observation and time are two essentials; for the alienist does not live who can in one day and one examination discover the possibilities and limitations that exist in an individual.

Down through the vista of the Future, I see a bright light shining along the line of star it shines full upon Occupational Therapy, treatment of the Insane, and like a beaming

DEMENTIA PRAECOX AND ITS ANTI-SOCIAL SYMPTOMS REQUIRING INSTITUTIONAL CARE.*

By LOUISE B. TRIGG, Lakeland.

Dementia Praecox is provisionally regarded as a psychosis which makes its appearance in especially predisposed persons usually between fifteen and thirty years of age and rapidly leads, in the great majority of cases, to a profound and distinctive type of dementia. It comprises a very large number of the cases, about one-eighth of the admissions to State Hospitals, and is characterized by a large number of symptoms, many of which may be regarded as almost pathognomonic of Dementia Praecox. Its recognition is mainly due to Professor Kraepelin of Munich.

A broad view of Dementia Praecox gives the impression that is the fulfillment of an unconscious desire of the patients who suffer from it to retire from the world of reality to a world of their own creation. Hence they are said to be "introverted" or "introjected." So far as the reception aspects of the mind are

*Read before the Jefferson County Medical Society,

concerned, there appears on the whole to be little disturbance. Perception, cognition, recognition, ideation and memory are all fairly good. The defect is mainly in the efferent functions; emotion is paralyzed while instinct and volition are ill-directed. The patient performs extraordinary actions which appear to be neither instinctive nor reflex; yet he tells us they are beyond the control of his will (that is unconscious). It has, therefore, been suggested that in this disease there is disassociation between the afferent and efferent functions of the cortex. This view receives support from the pathological discovery of Alzheimer that there is gliosis of the deepest layers of the cortex, since Lugaro has decided by a process of exclusion that the function of the polymorphous cells of these deep layers is that of associating efferent with afferent impulses.

The first chief sign in such cases is an inability to perform the usual work or mental tasks with the same facility as formerly. Hypochondria is often a frequent symptom. Patients complain of every ailment that is possible and have no physical reality. They often show outbursts of temper and strange waywardness that make their society trying to others.

This is a group of cases in whom early years may have presented nothing abnormal. Some cases indeed showing promise of exceptional mental ability, as they approach adolescence manifest intellectual arrest with insane and sometimes alarming conduct followed by permanent mental inhibition. The cases of career and life thus blighted show various degrees of intensity of their symptoms. In milder cases the symptoms are so imperceptible and cause so little trouble that they seldom, in the earlier stage, are submitted for institutional treatment. They maintain, for varied periods of time, enough adjustment in their home surroundings, according to the rapidity with which the mental deterioration takes place, that no one outside the immediate family and their physician is aware of their mental derangement. Eventually, however, as the psychosis progresses they are no longer properly able to adjust themselves to the ordinary events of life as, for instance, to employment, leaving one position after another for many different reasons; one place "the boss is too harsh," another, "the fellow workmen are mean," still another place, "it is too early to get up in the morning," or "it is too great a distance from home." Always an excuse without any real good reason back of it for the constant change of jobs. Finally, they no longer seek any position at all and remain at home helping about the place with the

housework, having now become a loss to the community from an economic standpoint as a useful wage earner and an added burden to the family in the way of their support, and cases have been known to remain home under this status for as long a time as fifty years. If at any time during such a status as stated above, the member or members of the family that have acted as a buffer between the patient and the stress and strife of the outside world be removed by death or other causes, his adjustment is quickly lost and symptoms are developed that soon bring him to the notice of the neighborhood and steps are taken to remove him to an institution.

The patient often appears to be aware of his mental incapacity, but no regret or fear of the future dims his mind. They become indifferent, stupid, foolish and improvident and the will power is lessened to such a degree that they are unable to make an adjustment to their surroundings.

It is of interest to note that many of these cases of insanity resulting from the late World War, were of the Dementia Praecox class. Here the home conditions were similar to those just previously stated, an environment that afforded enough care, shelter and protection to maintain a feeling of security against the rough ways of the work, all of which was lost on their entrance into service, where they had to stand and face the world alone, the result being conduct so at variance with the normal that it did not require even the observation of a trained psychiatrist to detect in numerous cases that they were mentally unbalanced. Another result of inability to adjust was the number of A. W. O. L.'s and desertions growing out of what had become an intolerable situation. Also, those that weathered the storm and returned home could not re-adjust themselves to their previous surroundings and gave evidence to the family that something must be done for their proper care and protection.

They often develop vague delusions of persecution in which their nearest relatives figure as the persecutor, many times a member of the immediate family and then again upon someone that was, possibly, even unaware of the existence of the patient. They some times have delusions of grandeur regarding their own importance and, because of the superiority of their attainments, think that others are jealous of them. Many a school girl has produced discord in school and at home and a neighborhood has been kept in a state of turmoil before the symptoms are sufficiently pronounced for the trouble to be recognized. Many blasted careers, blighted prospects and inexplicable failures of life result from this

disease. As the symptoms become more pronounced, the fancied wrongs cause them to retaliate even to the maiming and killing of their persecutors. Hallucinations of hearing in the form of so-called "voices" play a prominent part in the picture. "Voices" accuse them of all sorts of crimes, call them vile names and command them to do most any conceivable kind of thing; for example, there resides a young man at this institution that was told by "the old eat howling on the back fence to kill his mother," and he proceeded to put the command into execution and destroyed his mother with a hatchet.

Carelessness in regard to personal appearance, eccentricities and mannerisms in speech, obscene language and the writing of indecent letters are also symptoms. It is possible that many persons who have been arrested for improper use of the mail are victims of this disease.

Suicidal attempts are among the class of praecox cases that require institutional care. Although suicide is not the general rule, they will make numerous and bizarre methods at self-destruction without quite wanting to complete the act.

Still another phase of the situation coming under the heading of this paper is the amount of damage done to young and susceptible members of the patient's immediate family and others that he comes intimately in contact with. It has been shown that such damage has occurred in more than one instance, resulting in another case of insanity. Here a careful consideration of the given case is necessary to determine how badly deteriorated the patient may be and the amount of abnormal conduct that he developed noticeable to those about him or that he will communicate to them.

It is hardly within the scope of this paper to enumerate all the symptoms of Dementia Praecox although many of them play an important part in the consideration of what cases will require institutional care and, undoubtedly, the best guide will be the careful study of the personality changes as they are recognized and assume form that becomes evident to the observer, personality being here defined in terms of behavior, "as the aggregate of those personal habits, which, by continuous employment, have become so ingrained in the individual that those who know him can rather closely predict what course of action, what mental attitude, and what emotional responses he will display under given circumstances." (Amsden.) It is only a step from a seclusive boy to one that will develop anti-social conduct, first probably a truant, then the joining of some questionable

gang with criminal tendencies, and the patient will soon reach the stage where he will steal, boot-leg whiskey, this being one of the later day occupations, set fire to buildings, commit acts of a sexual nature, as well as other overt acts on some innocent member of the community. Also, here may be grouped the cases of "ne'er-do-wells," tramps, beggars, drunkards, and wanderers over the country living on whatever community they may happen to be in and leading a truly parasitic existence, all being a potential danger to the country and there is no predicting at what stage these cases may deteriorate and become an actual menace. There are also the eccentric and border-land cases in another social stratum of society who are victims of Dementia Praecox.

Gradually the symptoms may subside but later it is apparent that the patient is profoundly demented. They may, perhaps, be capable of mechanical work but devoid of any initiative or the taking of intelligent suggestions. They can be of no value in society until finally, without knowing the history of the case, it is difficult to distinguish them from congenital imbecility. Defective heredity is found in a large portion of the cases. The physical health, in some cases, shows very little disturbance but, in other cases, a functional derangement may be marked which includes disturbances of all systems of the body. After some months or years the functions may re-establish themselves and, from this time on, the patient becomes unduly stout but shows more marked deterioration.

Dementia Praecox is divided into five varieties: Simple Dementia, Hebephrenia, Catatonia, Paranoid forms and Mixed forms. Many authorities on Psychiatry no longer care to make a definite or decided diagnosis of Dementia Praecox, preferring to designate a given case as constituting a certain phase or trend, in the endeavor not to fasten a flat-footed diagnosis on one that may later prove to be only a toxic case and often times recoverable, which is not considered to be generally true of a real praecox, remissions being the thing in order with them. It has been the tendency in the past not to pay much attention to the praecox as eventually they seldom recovered or that was the predominant idea, so the designation of trend or phase would be a constant reminder to the physician on his daily rounds to keep such patients under closer observation and attempt at least to secure a cure that he never could hope for in the praecox cases.

The institutions are handicapped in attempt to improve the condition of these pa-

tients owing to the fact that usually they receive them as a last resort and deterioration is so far advanced that one can only give them custodial care. If there condition is to be improved it is necessary that the diagnosis be made early in the case and by discipline and training in occupational pursuits it can be often arrested and they are able to be paroled to their friends and remain out of the institution for some time.

WHY MENTAL CLINICS SHOULD BE ESTABLISHED.*

By GEORGE H. DAY, Louisville.

It is generally conceded by medical men that clinics occupy a specific place in modern medicine. The results accomplished by tubercular, venereal and prenatal clinics in the city of Louisville are of sufficient importance to encourage further steps in endeavoring to institute others, so that certain types of patients, availing themselves of clinics, may be augmented. It is agreed that clinics as such, are occupying a specific place in medicine, and that in no other manner can certain cases be so efficiently treated. Then granting that clinics are successful, that they do fill a necessary place, we will assume then, it will be quite unnecessary to advance arguments in favor of further elaborating the clinic idea.

Is there any class of society, where scientific investigation and treatment, is indicated more than among those unfortunates who either from heredity or environment, are potential wards of either private or state institutions?

We know that early diagnosis is most important in relation to the ultimate result. Surely it is agreed that in modern medicine there is no place for procrastinating diagnosis, whether it be an infected finger, a genital ulcer or a bladder tumor.

It appears to the writer that the problem of the mentally deficient is more serious from the point of economics, than the blind, the crippled or even the tubercular. Most all of these are capable of following at least partial occupations, while in the mental cases the zone of occupational endeavor is rather limited.

Owing to the overcrowded conditions confronting us in the state institutions, would it not solve the problem at least temporarily to divide the state into zones, according to the population and establish clinics, where all mental cases are to be referred for diagnosis; where those mild cases could be suc-

cessfully treated, in other institutions, then sent in to the hospitals? There must be many cases in this institution, that under proper clinic care, perhaps might remain with their families, epileptics for example. Is that not one class that perhaps could be treated in a clinic?

Consider the syphilitic as another. It has been estimated by authorities, that 15 per cent of the first admissions to our state hospitals, is the result of and caused by syphilis. Pollock (1) found in 1917, that in the state hospitals of New York, there were 1,370 cases of general paresis, and 122 cases of cerebral syphilis under treatment. He further says that estimating the cost of maintenance of patients of this type, by the state, and the loss of earnings, resulting from their incapacitation, the appalling figure of \$5,398,644.99 was obtained.

Fordyce (2) states that the purely clinical methods of diagnosis employed in the past, and unfortunately at this time, together with inefficient therapeutic procedures, have resulted in a large number of individuals, permanently disabled both mentally and physically, who become inmates of public institutions or a constant care and expense to their families.

It appears then that these institutions, and at this time, are housing hundred of cases that had proper treatment been followed, prior to admittance, the state would have been spared the cost of maintaining them, and also perhaps the patient may have remained a normal and useful citizen.

We know that many syphilitics are improperly treated in private practice. We also know that the prognosis is entirely a matter of the personal equation of the physician with the proper training who exercises and applies proper treatment, and checks appropriate treatment with serology of the blood and spinal fluid, naturally if all leutics were treated thus, possibly neurosyphilis and transversely admissions would decrease.

Irvine (3) says that "investigations have shown that not more than from 30 to 50 per cent of patients infected with gonorrhea or syphilis, receive adequate medical attention at the hands of private practitioners." These astounding facts remind us, that we must not enter lightly into the treatment of these cases. We must by every agent in our control, be scientifically awake and on our toes, in administering proper therapeutics agents in the control and cure of syphilis, in that these early cases may be returned to society, clinically and serologically cured there by minimizing the possibility of a later involvement of the central nervous system

*Read before the Jefferson County Medical Society.

This routine applies to neurosyphilis also. At this time owing to more efficient methods in diagnosis and treatment, neurosyphilis in the properly treated cases will be the exception.

Then how shall we attempt to attack the particular problem of the neurosyphilitic that are ultimately state wards? Our first efforts should be exerted in the establishing of clinics for mental cases. There are other phases of this question that could be easily covered by such clinics. The correction of common erroneous impressions and misconceptions among laymen and also in our profession, relative to diagnosis, treatment and care of the insane. It would also in an educational way, bring home these questions through the press and in contact with the families of the patients, spreading the propaganda of mental hygiene.

Insofar as the syphilitic is concerned, every effort should be made to routinely examine, by the latest laboratory and clinical methods, every patient, and when lentie, appropriate treatment should be applied. Properly trained workers, familiar with intra-spinal therapy, for the tabetics, should be available as wonderful results will be obtained in selected cases. Unfortunately, treatment in paresis, offers little, but by instituting the proper treatment prior to its development, paresis will be reduced to a minimum.

Possibly the greatest obstacle in the path of mental clinics, is the matter of funds. The ideal plan would be for the state to equip and maintain them, but as the lack of money seems to prevail, other agencies should be canvassed.

In the writers opinion, a properly conducted publicity campaign, would secure ample funds for such an undertaking, even if on a limited basis for a beginning. It is quite unreasonable to suppose, that if it were shown in dollars, the tremendous saving that could be effected in this state, by the establishing of clinics, the reduced cost of maintenance in state hospitals, the increased earning power of the patients themselves, and the greatest of all, the knowledge that these unfortunates, at times through no fault of their own, are spared the hospital, under restraint, but permitted rather to enjoy their portion of the sweets of life, among those they love.

I say, some one, somewhere in this state could arouse sufficient interest to raise ample funds to establish such a necessary adjunct to our institutions.

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UNILATERAL CONTINUOUS EPILEPSY: CASE REPORT.*

By JOHN J. MOREN, Louisville.

The title of this report may be misleading, but on account of the questionable diagnosis the term "Unilateral Continuous Epilepsy," is used instead of Jacksonian epilepsy.

W. D., male, aged eight years, a well-developed boy, with negative family history. Personal history: In early infancy suffered diarrhea; since then has required laxatives regularly. At eleven months had mumps; no history of any other illness.

During the summer of 1921 he was struck on the head by a falling stone. Other than a scalp wound no trouble was noted. In October, 1922, he had a nocturnal convulsion, and a similar attack occurred every two or three weeks until May, 1923. No attacks were noted from May to October, 1923, when he had what was described as a slight attack.

In January, 1924, he complained of a severe cold, and coughed considerably at night. His mother noted for a few months prior to his present illness that he was more irritable, a little harder to please, but other wise no symptoms were manifest.

The last severe attack occurred on Monday, February 12, 1924. He remained home from school the next day or two. On Thursday his father noticed he had a peculiar blank expression, rolling of the eyes, etc. The boy said there was something wrong with him, that he did not know what he was doing or saying. These occurred quite frequently and lasted only a few seconds. On the following Monday, seven days after the severe attack, the right side of the face began to twitch, coming in paroxysms every five or more minutes, with momentary loss of consciousness. Ten days later the right arm and leg became involved, and his attacks now assumed the hemiplegic form, characterized by clonic contractures, the arm in extension and hand flexed, the head drawing to left. These seizures lasted only a few seconds, to be repeated every three to fifteen minutes, occurring all during the day, even while the patient was asleep. The pulse was reported to be as low as 45. He complained of no pain or paralysis. No cranial nerve involvement. No history of vomiting.

The boy was first seen March 7, 1924, three weeks after the onset. He was slightly exhausted, spoke in a muffled tone, and used but few words. There was no fever, pulse ranged

*Clinical report before Jefferson County Medical Society.

from 60 to 85. The seizures were limited to right side, typical clonic movements, with deviation of eyes to right, and head to left side, occurring every few minutes, and lasting only for a few seconds.

Examination revealed typical Babinski on right foot, other deep reflexes were active but not unequal. No cranial nerve signs. No sensory symptoms. Blood and Wassermann negative. Spinal fluid showed no increase in pressure, but increased globulin. Wassermann negative. Thirty grain doses of bromide of strontium were given every three hours. After the second dose the attacks ceased. Within forty-eight hours the boy was decidedly himself, talking very well and had good use of his arm. About the fifth day he developed tonsillitis, which did not cause any return of the former attacks.

In two weeks he was sent to his home feeling very good though weak. At that time the Babinski had disappeared and the only abnormal reflex was a decided bilateral foot clonus.

He reported April 29, 1924, for re-examination. The patient has had no medicine except a laxative. There has been no recurrence of the attacks. He is feeling fine and seems a typical boy. All reflexes are natural, active, and equal. No cranial nerve changes, no motor weakness, no mental change. Under roentgen-ray examination the skull is negative; the colon shows rather large, and tortuous, with an incompetent ileocecal valve.

Comment: The history would lead one to the opinion that this boy is an epileptic, having both major and minor attacks, but the unilateral continuous seizures are unusual.

It is my belief that he had some irritative lesion of the cortex, to the exact nature of which I have no clue. Whether his major nocturnal attacks were related to the head injury one year before I cannot say. Such a history is quite common with epileptics. Whether the unilateral attacks were related to his "deep cold" during January I am unable to say. If he has a tumor it is not showing any signs at present. Was it status epilepticus confined to one side?

This is the second case I have seen relieved by good doses of bromide. Such cases have been reported resulting from organic diseases, such as tumors, etc. Also similar cases have been operated upon expecting to find a tumor. These experiences teach us that partial epileptic seizures, though symptomatic, are not always surgical cases.

DISCUSSION

W. E. Gardner, Louisville: Dr. Moren has reported a very interesting case. Personally I have

never encountered one just like it, but quite a number of similar cases have been recorded in the literature. They are not considered Jacksonian epilepsy but idiopathic epilepsy with focal symptoms. As suggested by Dr. Moren the early attacks seem typical of ordinary idiopathic epilepsy but after a time localizing signs appear.

Very little is known about the pathology, and it is difficult to account for the unilateral manifestations in these cases. Some authors believe the attacks are due to disturbance of brain centers in the motor area, that the explosions are perhaps greater in certain of the brain centers than in others during successive seizures, and in that way account for the symptoms becoming localized. Knapp (*Journal of the American Medical Sciences*, January, 1922) refers to numerous cases of this kind.

The lesion may be located in the pre-rolandic area, the posterior central convolution, in the temporal lobe, etc., the symptoms varying with the site of the cerebral disturbance.

Like Dr. Moren, Knapp advises against surgical intervention based upon focal symptoms. It seems reasonable to assume that when the site of the cerebral disturbances vary so widely, surgical intervention might be disappointing in many instances.

Carl Weidner, Sr., Louisville: During February I was consulted to examine the boy mentioned by Dr. Moren. There was no history of any disease which might have been responsible for the epileptic attacks, but there was a head injury some time prior to development of the seizures. Four years ago the brother threw a rock which by accident struck the boy on the head. Little damage was apparently inflicted and not much attention was given it, nor did any symptoms develop immediately.

Since the epileptic attacks have developed, and there is a clear history of former injury, I have wondered whether, based upon the focal symptoms, something should not be considered surgically in this particular case. At the same time we know that adhesions following surgical intervention for epilepsy, with destruction of nerve cells in the cortex, etc., have sometimes resulted in further damage. Someone has recently suggested the injection of alcohol to prevent the formation of adhesions in such cases.

John J. Moren, (In closing): For the benefit of Dr. Weidner, who arrived too late to hear the case report, I will say that the patient was examined last week. He now has absolutely no signs of his former trouble; he is a typical BOY, wants to go fishing, see wild west moving pictures, etc.

After the administration of two doses of bromide of strontium, thirty grains each, the epileptic attacks ceased, and he has not had one

since. This is the only medicine he has received except a laxative occasionally.

There is a very interesting article on this subject in the May issue of the Archives of Neurology and Psychiatry, by Wilson of Philadelphia.

ANTERIOR POLIOMYELITIS: CASE REPORT.*

By L. WALLACE FRANK, Louisville.

The following case is interesting principally because of its similarity to one reported by Dr. John J. Moren at our last meeting, namely a case that was apparently hysterical possibly associated with anterior poliomyelitis of low grade and with quick recovery. At that time some discussion arose as to whether there were cases of anterior poliomyelitis with mild symptoms that were not recognized.

The patient is Miss E. G., aged twenty-one, a nurse who has been in training for about a year. She had influenza in 1920 and again in 1922, also the ordinary infectious diseases of childhood including scarlet fever.

At the age of seven or eight years it was noticed that she had some discoloration of the skin over the middle of her right leg. This was not painful and she had never noticed any weakness of the leg. She had no fever and was apparently well at the time.

A year or so later it was noticed that the right leg and foot had stopped growing and were smaller than the left. At the age of twelve years she was seen by Dr. Ravitch when there was one inch difference in measurement of the calves of the two legs and also just above the knees. She had no difficulty or trouble in walking and was apparently well until she entered the training school in September, 1923. She began to complain, eleven months later, of pain in her right leg, some pain in foot and ankle. She says that at times her right knee has a feeling of stiffness, but there has been no pain in the knee, thigh, or back. Otherwise she is perfectly well.

General physical examination was entirely negative. There is a difference of one inch in the measurement of the two legs above the knees and in the calves of the legs. Tendo-Achilles of both legs well developed. There is some atrophy of the small muscles of the right foot most noticeable on dorsum; also atrophy of tendons going behind the internal malleolus. No disturbances of sensation in thighs, feet, or legs in regard to heat, cold, tactile, muscle sense or pin prick. Motion fair in both legs, achilles and knee jerk present on both sides and about equal. Skin over

right middle and outer aspect of right leg somewhat shiny, but there is no distinct atrophy or other discoloration.

We were asked to see this girl on account of pain. Roentgen-ray pictures were made of the spine to exclude nerve pressure and of both legs to show whether there were any definite bone lesions to account for the atrophy and pain. Dr. Bayless can discuss that feature to better advantage than I can. Apparently there is no change in the bone of either leg. We thought for a time that she might have a tumor involving the bone of the right leg but nothing could be discovered. The pictures, if you will compare them, show atrophy of some of the smaller muscles of the foot and quite definite atrophy of the tendons going behind the internal malleolus.

We believe these lesions are due to an attack of anterior poliomyelitis which this girl had when a child and which was not recognized at the time, that there was some destruction of the deep muscles of the right leg and consequent weakness of the foot, due to lack of muscular support of the arch. Her present pain is due to the fact that she has been standing on her feet a great deal more than had been her custom before she entered training, that it is the non-support of the deep muscles of the leg and lack of support of the arches is the cause of her pain.

The other possibility in the case was a tumor of the cauda equina which I think can be excluded on account of the fact that there is neither segmental distribution nor sensory nerve distribution in that area. Furthermore, she has no other symptom except pain and with the amount of pain she has one would expect hyperesthesia or anesthesia of some part of the leg which is not present. In tumor of the spinal cord pain may be the only symptom and this is probably the commonest early symptom of cord tumor. This girl has no motor symptoms, all the reflexes being normal, and sensation is normal throughout.

This patient was referred to Dr. W. Barnett Owen, and I am sorry he is not present to discuss the case. It was his opinion also that this girl had an old anterior poliomyelitis which was not recognized at the time, that it was so mild that only one group of muscles became involved, and he hopes to overcome the difficulty by the application of arch supports.

During routine examination of this girl spinal puncture was attempted but caused so much pain that it was abandoned. The family history is negative; there are four or five children all of whom are healthy. This girl is perfectly healthy and while there is no

*Clinical report before the Louisville Medico-Chirurgical Society.

reason to suspect syphilis as a cause yet it may be possible. A blood Wassermann reaction was not made. Dr. Owen has sent her home to the country for a two weeks' rest. When she returns if she complains of further pain we expect to make a Wassermann test both of the blood and spinal fluid.

DISCUSSION

Ban Carlos Frazier, Louisville: In my opinion this is undoubtedly a case of mild anterior poliomyelitis which was unrecognized. Of course anterior poliomyelitis, or infantile paralysis, was not quite so well known in those days as it is now. As people increase their work, change their occupations, add more stress and strain upon the nervous mechanism, we may expect to see pictures of this kind more frequently.

I do not believe the spinal puncture or Wassermann reaction will be of any value in this case.

J. Garland Sherrill, Louisville: I agree with the other speakers that everything in the gross history of the case reported points to unsuspected anterior poliomyelitis. My experience is that these muscular disturbances from infantile paralysis are not painful as a rule. They become painful only when the deformity exerts pressure upon sensory nerves. That may be a point of importance in the diagnosis of such cases. The muscular atrophy and other manifestations in this case point strongly to a mild, unsuspected attack of anterior poliomyelitis.

B. W. Bayless, Louisville: The roentgen-ray examination in the case Dr. Frank has reported showed nothing abnormal, the bones in both legs looked absolutely the same. In marked cases of anterior poliomyelitis there is lack of development of the bone on the affected side. In this case absolutely no change was noted.

J. Rowan Morrison, Louisville: The case reported is undoubtedly one of anterior poliomyelitis which was not discovered at the time. Then as the girl became older and did more work she developed pain in the leg and foot.

Some year ago I saw a case of this kind in a child aged six years who developed so-called weak foot, the calf of the leg was flabby and somewhat smaller than the other calf. The child walked with a decided limp. The parents could not remember exactly when the child had been sick, except that he had some acute infectious disease two years before that. They said the child was sick for only a week. That was unquestionably a mild attack of anterior poliomyelitis.

W. E. Gardner, Louisville: I think the case reported by Dr. Frank has been diagnosed by exclusion as one of anterior poliomyelitis. The case teaches an important lesson, i.e., in many of these minor atrophies we are unable to obtain a history of any acute illness with fever, and

is quite probable investigation would show them to be cases of this kind. It is uncommon that we will find atrophy merely of one small group of muscles with normal tendon reflexes. Usually there is diminution of the tendon reflexes, it may be so slight, however, that all of the cells are not entirely destroyed, and the reflexes are merely disturbed not lost.

The possibility of a mono-neuritis due to some localized infection might be considered in such a case.

J. A. Flexner, Louisville: Dr. Frank raised one important question in reference to anterior poliomyelitis, and that is the attack may be so mild as to escape recognition. I believe it was at the beginning of the last great epidemic of this disease in New York that Dr. Gabney remarked there were entirely too many paralyzed children coming to his clinic, that there must be anterior poliomyelitis about the city. An investigation was started and found this was true, and that epidemic has not yet entirely subsided. The fact is that cases of epidemic anterior poliomyelitis exist all the time, consequently we have a re-emergence of the disease from time to time. The disease develops in new material, disappears, then we hear of it again, particularly children who associate with carriers of the virus. Children are undoubtedly infected in that way and thus epidemics are started from time to time.

In the sporadic cases seen in Louisville at various times I have been impressed with what Dr. Sherrill said about the absence of pain. The pain may be insufficient to attract the attention of the child. These cases are seen in private as well as hospital practice. Even during the acute attack the child may not appear to be very ill and makes no complaint. Pain is caused, as Dr. Sherrill said, by pressure effects, and is a late symptom as a rule.

I believe the case reported is one of unrecognized anterior poliomyelitis.

L. Wallace Frank, (In closing): The only reflex which was not entirely normal in the case reported was in the deep muscles of the right leg. There is little or no difference in measurements of the two thighs, no more than might be due to disproportionate muscular development. There is some difference between the two calves and just above the knees. Apparently the muscular atrophy involves only the deep leg muscles, consequently there is very little disturbance of the knee jerks.

Most of the history of this case was obtained from the girl's mother. The girl could not remember of having been ill at any time. The mother states that the girl had the ordinary infectious diseases of childhood including scarlet fever. There was no history of any other illness.

Regarding one of the epidemics of anterior

poliomyelitis in the east as mentioned by Dr. J. A. Flexner: I happened to be serving in one of the Philadelphia hospitals at the time and saw a great many of these cases. They all had slight fever, absence of knee jerks and the spinal fluid showed an increase in cellular elements. The attack was not always of long duration; in some of the cases paralysis subsided in two or three days.

In the case reported the diagnosis to my mind is clear. The patient is now an orthopedic case and is now under the observation of Dr. Owen for the application of mechanical devices which he may consider necessary.

In explanation of the pain in this case being in the outer middle third of the calf: I believe it is due to the fact the anterior group of muscles are trying to give entire support to the arch.

A TYPICAL CASE OF VINCENT'S ANGINA.*

By SAMUEL G. DABNEY, Louisville.

A youth of 20 consulted me on November 11, 1924, stating that he had had sore throat confined to the right side for about a week. He felt slightly indisposed and there was decided pain in swallowing. He had no fever.

Examination showed slightly enlarged tonsils and on the upper surface of the right tonsil a yellowish white necrotic membrane, not so well-formed as the membrane of diphtheria and thicker than the thin film usually seen in mucous patches. The membrane was easily wiped off and beneath it was seen an ulcerated surface tender to touch. No other lesion in the throat was found, but the gums and teeth evidently needed attention. The lymphatic glands at the angle of the jaw on this side were somewhat enlarged but not tender. Microscopic examination of the necrotic membrane showed large numbers of the characteristic bacillus fusiformis and the spirillum; no spirochaeta pallida, and no diphtheria bacilli. As he responded quickly to local treatment a Wassermann was not made.

Treatment: First. Advised to consult a dentist; Second: To abstain from tobacco; Third: Given a gargle containing carbolic acid, tannic acid, glycerine and water, to be used every two hours; Fourth: Ten per cent emulsion of salvarsan in glycerine mopped on the ulcer, at first daily and then every other day.

Discharged well on the 22—eleven days after his first visit.

This case is typical of those I have seen in my own private practice. Occasionally other remedies such as trichloroacetic acid, silver

solution and iodine have been used in place of the glycerine emulsion of salvarsan, but except in the clinic and once or twice in consultation, I have seen no case which required the intravenous use of salvarsan or neo-salvarsan, though in the severer forms these remedies are indicated.

The following observations are from the new edition of Barnes on "The Tonsils":

The fusiform bacillus and its accompanying spirillum were first described by Miller in 1883, who found them in normal mouths and especially where there were neglected teeth. Ten year later Rauchfus found them in ulcer-membranous angina, but the work of Vincent on this line in 1896 gave his name to the disease. The organisms have been found in all sorts of necrotic and suppurative processes, in otitis media, in pyorrhoea, in pus from various abscesses and often in more serious form secondary to other infections as diphtheria, scarlet fever, and measles.

Though the ulcer-membranous inflammation has not been proven to be caused by these organisms, the consensus of opinion is to that effect.

The disease resembles sometimes diphtheria and sometimes syphilis. The Klebs-Loeffler bacillus should be excluded by microscopic examination, and if syphilis is suspected a Wassermann should be made (in my opinion, however, typical the appearance, a Wassermann should be done before giving salvarsan or neo-salvarsan intravenously).

The disease is most common in children and young adults and in debilitated subjects. It is especially severe and often fatal in leucemia. It was common among the soldiers in the trenches in the late war. In a large majority of cases it is confined to one or both tonsils, though the mouth and lower mucous membranes may be involved (in two cases I have seen the exact symmetry in the lesions of the two tonsils, which sometimes characterizes mucous patches). The disease is said to be mildly contagious. Recurrence is common, especially if oral cleanliness is neglected.

Prognosis is good in the great majority of cases, though in the rare sloughing forms death may take place—it is in these cases particularly that after a negative Wassermann salvarsan or neo-salvarsan intravenously should be given.

DISCUSSION

Octavus Dulaney, Louisville: I had the opportunity of seeing quite a number of cases of Vincent's angina at the clinic of the city hospital last summer. These were not of the ordinary type described by Dr. Dabney; the majority of them had reached the chronic stage of the

*Read before the Jefferson County Medical Society.

disease. In ordinary acute cases we used peroxide of hydrogen and found it enable; many of them recovered without much treatment. We made routine Wassermann reaction tests when these patients were admitted. I do not recall having seen a case of Vincent's angina with a positive Wassermann reaction. In one case we thought the manifestations were leutic, but we found the fusiform bacillus and spirochete, so a positive diagnosis of Vincent's angina was made. In most of the cases we used arsphenamin or some arensical preparation intravenously. Recovery was the rule after one injection. However, I remember one case in which three injections were given before subsidence occurred.

S. G. Dabney, (In closing): I have seen quite a number of cases of Vincent's angina and the majority of them have yielded to treatment inside of twelve days. However, there are exceptional cases of greater severity and more resistant to treatment. The most serious one I ever saw was exhibited before this society by Dr. Harris, of Portland, and Dr. Graves. If anyone had asked my opinion, I would have said that the patient had tertiary syphilis. However, a careful Wassermann reaction test had excluded syphilis. The disease was arrested by intravenous use of arsphenamin, and this result is secured in the vast majority of cases I think.

I recently saw in consultation an elderly man very much reduced in general health who had an infection about the mouth. The diagnosis lie not between syphilis and Vincent's angina, but between malignant disease and Vincent's angina. The debilitated condition of the patient, his age, and the appearance of the lesions all suggested malignancy. Examination disclosed that he had Vincent's angina.

BOOK REVIEWS

DIABETES: A handbook for physicians and their patients by Philip Horowitz, M. D. With thirty-four text illustrations and two colored plates. Second edition revised and enlarged. Paul B. Hoeber, Inc., New York. Price \$2.00. The author's aim in offering the second edition is primarily the same as in the first—"to bring about more intelligent cooperation between doctor and patient," and also to incorporate the latest ideas and methods regarding the use of insulin and the calculation of maintenance diets.

Except for the revision of the chapter on mild diabetes, the book has been entirely rewritten. The insulin treatment of severe and juvenile cases has been thoroughly discussed; methods for working out proper maintenance diets have been formulated; seventeen new formulas and recipes have been added; the Van Slyke test for CO_2 combining power of the plasma has been inserted and the Folin and Wu method of sugar

estimation substituted for that of Benedict Lewis. The author has gone into the history of diabetes from the time of Hippocrates, a summary of which is given in the appendix.

In spite of additions to the book, its size has been but slightly increased, because of the omission of various tables and charts made unnecessary by the use of insulin.

MANAGEMENT OF DIABETES: Treatment by Dietary Regulation and the Use of Insulin. A Manual for physicians and nurses based on the course of instruction given at the Presbyterian hospital, New York. By George A. Harrop, Jr., M. D. Associate in Medicine, College of Physicians and Surgeons, Columbia University and Assistant Visiting Physician, Presbyterian Hospital, N. Y. Introduction by Walter W. Palmer, M. D., Board Professor of Medicine, College of Physicians and Surgeons, Columbia University, Medical Director, Presbyterian Hospital, N. Y. Paul B. Hoeber, Inc., New York. MCMXXIV

This book is intended to be a manual for physicians and nurses, on the management of this disease by means of dietary regulation (which still remains the foundation of all diabetic therapy) together with the use of insulin. It is the outgrowth of experience gained in giving a course of instruction to 600 physicians and about 50 nurses at the Presbyterian Hospital in the summer of 1923, under the auspices of the college of Physicians and Surgeons and was made possible by a grant of money from Mr. John D. Rockefeller, Jr.

The use of insulin in the treatment of diabetes was begun at Presbyterian Hospital (the first to use it in New York) in August, 1922, and practically all of the cases treated up to the present time have been observed and followed by the author.

An easily followed outline of every procedure has been given, with practical hints on just the points concerning which the physicians taking the course have asked fuller help.

The food tables represent a distinct advance in general practical utility and simplicity.

Each food is set down as to its content of fat, carbohydrate and protein in five and ten gram multiples up to one hundred grams, together with the weight or size of the average serving, so that the actual amount of calculation is greatly lightened. Group figures are used for fruits, vegetables and meats.

Dr. Morris Flexner, 902 Francis Building, has been commissioned a major in the Medical Reserve Corps of the army.

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NEXT ANNUAL MEETING—OWENSBORO, 1925

Bell: The following program has been arranged and the meetings will be held in Middlesboro, April, June, August, October and December. In Pineville in May, July, September and November.

April: Mason Combs—Dyspepsia as a Diagnostic Symptom; J. C. Carr—Gastric Ulcer; Ran Ingram—Open Discussion.

May: C. K. Brosheer—Dyspenes and Coughs as Diagnostic Symptoms; Tilman Ramsey—Pulmonary Tuberculosis; T. H. Card—Open Discussion.

June: O. P. Nuckols—Weakness as a Diagnostic Symptom; T. C. Clayton—Thyroid Dysfunction; M. D. Hoskins—Discussion.

July: Jacob Schnltz—Fractures in General; J. P. Edmonds—Fracture of Nose and Face; J. T. Evans—Discussion; P. E. Gianinni—Discussion.

August, Open Meeting in charge of Ladies' Section of Society: Dr. H. C. Chance, Dr. J. H. Hendren.

September: U. G. Brunnett—Abdominal Pain as a Diagnostic Symptom; W. K. Evans—Cholecystitis; H. H. Atkinson—Discussion; T. G. Viars—Discussion.

October: J. R. Tinsley—Fever as a Diagnostic Symptom; J. H. S. Morrison—Typhoid Fever; J. M. Hamilton—Discussion.

November: J. G. Foley—Convulsions as a Diagnostic Condition; L. D. Hoskins—Toxemia of Pregnancy; J. S. Bingham—Discussion.

December: Special Program—Election of Officers.

All assigned subjects will be discussed. Let every one at least give a short paper. This will start the discussion.

Perry: The following program has been arranged:

April 13, 7:30 p.m.: J. P. Boggs—"Practical Microscopy Laboratory Work for the General Practitioner." Discussion by Dr. George Bowls, Bulan; G. B. Wheeler—Paper on "Most Common Fractures." Discussion by H. P. Duff, Chavies.

May 11, 7:30 p.m.—Offices of Drs. Gross and Collins: W. H. Gingles—"Medical Ethics." Discussion by Dr. G. D. Ison, Blackey. Taylor Hurst—A paper on "Summer Diarrhoea." Discussion by Dr. H. Hensley, Napfor.

June 8, 7:30 p.m.—Ladies' Night and Banquet at Hotel Combs: Paper on "Infant Feeding"—Dr. Z. M. Abshear, Lothair; Paper—"The Doctor's Wife"—by Mrs. H. W. Gingles.

Hardin: The Hardin County Medical Society met on January 8 at the Brown-Pusey Community House with the following members and visitors present: J. M. English, President, H. R. Nusz, Cecilia; W. C. Rogers and S. D. Winstead, Rineyville; E. W. Montgomery and J. R. Cowherd, a visitor, Vine Grove; J. C. Mobley, J. M. English, W. F. Elvey, R. T. Layman and D. E. McClure, Elizabethtown.

The application of F. G. Hale, Glendale, was received and upon motion and second reading was accepted.

There were numerous reports of unusual and interesting cases with well directed discussion. Although the number of Doctors in Hardin County has become quite small, there was manifested a spirit that would indicate they mean to continue to make the Society a useful organization.

The next regular meeting will be February 12, at which a luncheon banquet will be served and a general good time is anticipated.

D. E. McCLURE, Secretary.

Fleming: At a regular meeting of the Fleming County Medical Society at its December meeting the following were present:

Drs. W. S. Reeves, Vice-President, presiding; J. H. Kelly, J. W. Bellomy, A. S. Robertson, E. T. Runyon, C. R. and C. L. Garr, J. B. O'Bannon, A. M. Wallingford, Jr., and Chas. W. Aitkin.

At and immediately following this meeting the fourteen members of the society had paid their dues. The following were elected officers for the years 1925:

J. W. Bellomy, Sherburne, President; C. R. Garr, Flemingsburg, Vice-President; J. B. O'Bannon, Flemingsburg, Secretary-Treasurer; Censors, W. T. Jessee, one year; J. B. O'Bannon, two years; W. S. Reeves, three years. Delegate to State Medical Association, E. T. Runyon, Ewing; Alternate, Chas. W. Aitkin, Flemingsburg.

CHAS. W. AITKIN, Secretary.

Franklin: C. T. Coleman, the retiring president of the Franklin County Medical Society, entertained all the physicians of the county at a dinner in the private dining room of Capital Hotel, Monday, January 12, at 6 p.m.

There was present:

C. T. Coleman, Minish, Coblin, Ginn, Wilson, Heilman, Youmans, Budd, Darnel, Demaree, Jackson, Barr, Fish, Patterson, Roemele, Stewart and Mastin.

J. S. Lock, representing the Tuberculosis Department of the State Board of Health, was a guest of the society and made a short and instructive talk upon the work and how carried out with the assistance of a Welfare Nurse, stressing the importance of having a nurse in each county working with the doctors in the care and follow-up service of patients suffering with preventable diseases.

All doctors present agreed to help in every way to keep a nurse in the field. Dr. Lock was invited and accepted invitations to return in February and hold Tuberculosis clinic assisted by members of Society. Date to be fixed later.

The annual election of officers was held and resulted in the following being elected:

R. B. Ginn, President; M. C. Darnell, Vice-President; F. W. Mastin, Secretary-Treasurer; J. P. Stewart, Delegate; L. T. Minish, Alternate;

Dr. C. E. Youmans and Dr. John Patterson, Censors. Time of meeting changed from 2nd Monday to 1st Thursday each month.

A most delightful dinner was served followed by a social hour and every one voted this the very best and most harmonious meeting we have had. Dr. Coleman was complimented on his attendance during his term of office, never having missed a meeting, and also for his efforts to make every meeting a success. He was given a rising vote of thanks and three cheers for his sumptuous entertainment.

Adjourned to meet in February.

F. W. MASTIN, Secretary.

Henderson: The Henderson County Medical Society met in the regular annual business session in the office of Drs. Griffin and White, at 8 o'clock.

There were present Drs. Marshall, Strother, Cosby, Ridley, Jones, White, Griffin, Smith, Letcher, Neel, Ligon, Forwood, Quinn. Vice-President Marshall called the meeting to order.

Minutes of the previous meeting were read, and approved as read.

Motion made and carried that the society go into the election of officers for 1925.

The following were elected:

President, R. E. Smith; Vice-President, J. O. Strother; Secretary-Treasurer, Peyton Ligon; Delegate, Silas Griffin; Alternate, J. U. Ridley; Censor, Ira D. Cosby.

Silas Griffin and White extended an invitation to the Society to meet in their office, which was accepted.

M. Y. Marshall, who has charge of the Venereal Clinic here, reported that the State Board of Health had withdrawn their financial support to the Clinic and that the funds contributed by the fiscal court, and the city commissioners was not sufficient to continue the work.

A motion was made by Dr. Letcher, seconded by Dr. Cosby, that Drs. Smith, Strother and Ligon act as a committee to prepare resolutions to present to the State Board of Health, asking that they continue to give their financial support to the Venereal Clinic here. There being no further business, the Society adjourned.

PEYTON LIGON, Secretary.

Harrison: The Harrison County Medical Society held the annual meeting and dinner at the Harrison Memorial Hospital Dec. 1 1924. The following visitors and members were present:

F. A. Stine, of Newport; Drs. Sibert and McCarthy, of Cincinnati; Drs. W. N. Carr, Blount, Wood, Wyles, N. W. Moore, Wells, Rees, Martin, Swinford, McSwain, W. B. Moore, Todd, Henry, Clark.

Josephus Martin called the meeting to order and Society proceeded to election of officers. M. McDowell, President; J. P. Wyles, Vice-President; W. B. Moore, Secretary and Delegate to

State meeting; E. B. Petty, Treasurer and Todd, Censor. Dr. Sibert read a paper on "Infection of Biliary Passages," discussed by F. A. Stine, Clark McCarthy, Wells, Rees, N. Winon and W. H. Carr. F. A. Stine gave a talk on his experience as Councilor in maintaining County Societies and difficulties encountered in some counties in this district, McCarthy demonstrated a new instrument for testing hearing. Meeting adjourned. The good dinner was prepared by the Society and nurses of Hospital.

W. B. MOORE, Secretary.

Henderson: On January 19, 1925, the Henderson County Medical Society met in regular session at the Soaper Hotel at 6:30 p.m. After a sumptuous dinner, the members retired to a private room to discuss matters of interest to the Society.

There were present:

Drs. White, Ridley, Neal, Jones, Quinn, Griffin, Strother, Smith, and Ligon.

The meeting was called to order by President Smith. The minutes were approved as read.

The State Board of Health, having proclaimed the week of February 8-15, inclusive, as "Cancer Week," and in keeping with the spirit of this proclamation and in co-operation with the same, it was the unanimous opinion that we should devote the whole of the time of our meeting of February 9, to a discussion of this subject.

With this in view the following phrases of the question will be taken up and discussed as follows:

G. W. White—Cancer of the Larynx; J. U. Ridley—Cancer of the Breast; W. A. Quinn—Cancer of the Uterus; W. V. Neal—Cancer of the Stomach; G. F. Jones—Cancer of the Intestines; Silas Griffin—Cancer of the Rectum; J. O. Strother—Cancer of the Epithelioma; R. E. Smith—Etiology of Cancer; P. Ligon—Prevention of Cancer; M. Y. Marshall—X-Ray and Radium Treatment of Cancer.

PEYTON LIGON, Secretary.

Bourbon: The Bourbon County Medical Society held its regular meeting on Thursday evening at 8:00 o'clock at the Community Building. The following members were present:

W. C. Ussery, President; H. M. Boxley; H. B. Anderson; C. G. Daugherty; J. A. Orr; J. T. Brown; J. C. Hart; and M. J. Stern. As guests R. Julian Estill, Scott Breckenridge and W. M. Brown, all of Lexington were present.

The minutes of the December meeting were read and adopted.

R. Julian Estil read a paper on "Infant Feeding," which was enjoyed by all present.

Scott Breckenridge read a paper on "Observations in One Hundred Case of Obstetries," which was highly appreciated.

These two papers were liberally discussed in fact by all those in attendance.

The meeting then adjourned.

M. J. STERN, Secretary.

Perry: The Perry County Medical Society met in regular session in the dining room of the Hazard Hospital with the usual large number of members present and M. J. Kingins visiting. The newly elected officers took their places as follows: M. E. Combs, president; B. M. Brown, Vice-President; J. P. Soggs, (re-elected) Secretary-Treasurer; A. M. Gross and M. E. Threlkeld, Delegates; and Board of Censors, Drs. Z. N. Abshear, S.H. Snyder, and J. W. Seudder.

The minutes of the previous meeting were read and adopted and then was discussed by the members, lead by Dr. Gross, City licensor for doctors, presenting the fact that the Mayor had ordered all doctors to present their credentials when paying taxes and those without same would not be allowed to practice medicine in Hazard. This action was heartily approved by the Society.

The Society was then called at ease for refreshments which had been prepared by the doctors' wives of Hazard, and served by the Hospital waiters and all was highly appreciated.

R. L. Collins began a discussion of obstetrical fees to establish a minimum, but this subject was laid aside for thought and consideration.

A. M. Gross read a paper on contagious diseases and prevention, and reporting same by the doctors, stressing the fact that the public is getting lax and too much at ease about the dangers of these diseases, and that especially small pox is becoming, according to statistics, more virulent. He also stressed the importance of preventing diphtheria by inoculation with toxin antitoxin. This paper was discussed and complimented by the members as being timely and important.

Then followed a paper on preventive medicine, by Dr. J. A. Neblett, which was exhaustive and spoke of the fact that this was now a branch of medicine now being taught in the medical schools. He placed special emphasis on the prevention of infectious and contagious diseases by education of the public through health officers and health nurses, and by inoculation and vaccination. His paper and the discussion of it by the members also urged the importance of the public knowing the danger of these diseases, especially tuberculosis, syphilis and other venereal diseases. The danger of typhoid fever, small pox, pertussis measles, diphtheria, scarlet fever and tracoma was stressed.

The members were all very enthusiastic over these two papers and urged that we make every meeting this year this good and enthusiastic.

A. M. Gross made a motion urging that we observe Cancer Week, Feb 8—15 inclusive, which

motion was carried.

R. L. Collins, in his congenial, sympathetic way, told us of a letter he had received from one of our members, Dr. S. R. Riehie, who is now in the Veteran's Hospital, Dawson Springs, Ky., and made a motion that we send him letters of sympathy and to send him flowers.

The subject of charges for administering rabies vaccine was discussed by members of the Society and it was decided that \$65.00 was about right and the amount that most of the doctors have been charging.

Balance now in treasury, \$54.96.

On motion, duly seconded, meeting adjourned.

J. P. BOGG, Secretary.

The following resolutions were offered:

WHEREAS, it has pleased the Almighty to remove from our midst by death our esteemed friend and fellow practitioner, Marvin J. Kingins, who has for a time occupied a rank of prominence, maintaining under all circumstances a character untarnished and a reputation for honesty, integrity, and high ethical standards, above reproach.

THEREFORE, be it resolved, that in the death of Dr. Marvin J. Kingins, we, Perry County Medical Society, have sustained the loss of a friend and co-worker whose fellowship it was an honor and a pleasure to enjoy, that we bear willing testimony to his many virtues, to his unquestionable probity and stainless life; that we offer to his bereaved family and mourning friends over whom sorrow hung her sable mantle, our heartfelt condolence, and pray that Infinite Goodness may bring speedy relief to their burdened hearts, and inspire them with the consolation that Hope in futurity, and Faith in God give even in the shadow of the omb.

RESOLVED, that a copy of these resolutions be presented to the family of our deceased doctor, a copy be sent to our State Medical Journal and that of his home state, and his home paper, and one to each of the local papers, and a copy be spread on the minutes of this society.

Committee:

Dr. R. L. Collins,
Dr. M. E. Threlkeld,
Dr. J. A. Neblett,
Dr. N. G. Riggins.

RESOLUTIONS OF HICKMAN COUNTY MEDICAL SOCIETY.

WHEREAS, the Supreme Physician in his infinite wisdom has seen fit to call from earthly labor to eternal rest our beloved Colleague, Dr. E. B. McMorris who departed this life on October 1, 1924;

THEREFORE, be it resolved that his family has lost a loving devout Father and Husband, the medical profession a valuable member and the community a skilled physician and honorable

citizen.

BE IT FURTHER RESOLVED, that we extend to the bereaved family our profound sympathy and commend them to one who can heal all wounded hearts.

BE IT FURTHER RESOLVED, that a copy of these resolutions be furnished the family and a copy be sent the Kentucky Medical Journal for publication and a copy be spread on our minute book.

Harlan: Harlan County Medical Society met January 24, 1924. Was called to order by vice-president Dr. H. K. Buttermore.

The following officers were elected:

J. W. Nolan, President; N. S. Howard, vice-president; W. P. Cawood, secretary-treasurer.

W. P. Cawood and J. C. Nash were elected delegates to the State Medical meeting.

W. K. Howard and H. K. Buttermore were elected alternates. On motion adjourned.

W. P. CAWOOD,

Secretary.

Nelson: The Nelson County Medical Society met Wednesday, January 21st, 1925 at 10 o'clock a.m. in the office of the president. The following members were present: S. A. Cox, D. H. Pitts, W. E. Crume, G. W. Hill, J. J. Wakefield, F. G. Powers and R. H. Greenwell. Minutes of last meeting were read and approved. This was a called business meeting to consider public health nurse work for 1925-1926. The following motion was made by G. W. Hill and seconded by J. J. Wakefield:

"The Nelson County Medical Society in session today hereby indorses public health work in said County; and especially indorses work done by the present public health nurse during the past 2 years, and recommends that her services to be continued for another year. Voted and carried by count of 9 to 2. Later made unanimous."

RICHARD GREENWELL,

Secretary.

X-RAY STUDY OF THE ACCESSORY SINUSES, A RADIOLOGICAL VIEW-POINT.*

By C. D. ENFIELD, Louisville.

It is my purpose to outline a roentgenologist's view of the amount of information the rhinologist may reasonably expect to obtain from X-Ray study of the accessory sinuses of the nose, and to point out some of the limitations of this method of examination.

In fact, I believe the phrase "X-ray diagnosis" ought seldom to be used in any connection and probably never in connection with sinus studies. We should recall that X-ray pictures are not really, in the photographic

*Read before the Jefferson County Medical Society.

sense, pictures at all, but merely graphic records of the different densities through which the ray has passed before reaching the sensitive film. They are capable of differentiating tissues or exudates only in so far as these differ in density from their neighbors, and variations in structure, or even variations from normal to pathological conditions do not by any means presuppose corresponding variations in density.

In addition to the limitations thus inherent in the method, there are to be considered the added limitations of less than optimum technique, and certain other limitations rather peculiar to diseases of the sinuses. To consider the latter first, satisfactory roentgen conclusions as to sinus disease must be based upon an idea of a constant and demonstrable normal. This normal sinus picture depends upon equal and symmetrical bony development, and upon equal and symmetrical air content, so that the paired cavities may be compared one with the other. There may be lack of symmetry in either air content or bony development, and consequently in density, without present or active disease, and I believe that exceptionally there may be symmetry in X-Ray density with present and active unilateral disease. It is common to compare the the normal X-Ray density of the frontal or maxillary sinus, in its normal state, with that of the orbit, but this comparison may fail for the same reason.

It was formerly believed by roentgenologists that the increased X-Ray densities seen in acute suppurative sinus disease were the direct shadows of the purulent exudate. Van Zwaluwenburg, who made a careful and detailed study of this question (*American Journal Roentgenology*—January, 1922) believes that the shadow seen in these cases is not necessarily due to the pus content, but may be caused by productive process in the bony wall of the sinus which proceeds pari-passu with the suppuration. If this be true, it would naturally follow, as we know it often does, that the increased X-ray density would persist long after active infection had ceased and pus was no longer present. He also states that in the primary hyperplastic form of sinus disease, which he prefers to refer to as the polypoid form, there is a rarefying osteitis in the sinus wall which compensates, so far as X-ray densities are concerned, for the thickening of the lining, thus producing, at times, a normal shadow in a very abnormal condition.

Skullern (*Ann. Ot. Rhin. and Laryng.* September 22) a rhinologist rather pessimistic about the value of X-ray evidence in sinus disease, states that it is, in his opinion eighty-

five per cent efficient in antral infections, seventy-five per cent in frontals, forty per cent in sphenoids, and twenty-five per cent in ethmoids. He states that unsupported X-ray evidence should not form a basis for operative interference. As a matter of fact we seldom want to provide an unsupported basis for operative interference nor, I suspect, does the competent rhinologist want us to do so. The X-ray can however, provide topographical information that the rhinologist can obtain in no other way. This is of particular importance in regard to sinus infections in children, where it is the only method of learning whether the sinuses are developed to such an extent as to be clinically important, and it is of particular importance in regard to frontal infections in adults since the frontals are subject to such wide and common anatomical variation. Dr. Joseph Beck admits doing a radical operation on a frontal sinus only to learn, when he struck the dura, that no frontal existed on that side, an error the repetition of which he has since avoided by having his frontal cases radiographed before operation. The information obtainable as to the extent and distribution of the ethmoid cells and as to the size and contour of the sphenoid is, I conceive, of less value, but it should at all times be worth having prior to operation.

When the rhinologist refers a case of sinus disease for X-ray study for help in diagnosis, and not as a preoperative precaution, I take it it is because this case is in some particular obscure or has failed to respond satisfactorily to treatment, and he does not feel entirely satisfied with his own methods of examination. If, in such instances he gets only the partial measure of help which Skillern admits he is entitled to, he should not feel that the patient's money, if any, has been wasted on a frivolous examination.

If, further, the rhinologist will cooperate with the radiologist and see that the latter has the opportunity to check his examinations with the operative results, and to repeat them after operation so that he can see to what extent the X-ray condition keeps pace with the clinical change; and if the rhinologist will furnish the opportunity for more detailed study of the individual case, comparing definite clinical values with definite roentgen values, I believe the percentage of accuracy can be materially increased. Sinus densities can be usefully interpreted only in the light of the pathology which they reflect.

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KENTUCKY MEDICAL JOURNAL



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KENTUCKY MEDICAL JOURNAL

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Published Under the Auspices of the Council

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EDITORIAL

LOUISVILLE MEDICAL REUNION

Active plans are already under way for what promises to be the biggest reunion of Louisville medical graduates next June which has ever been held. Last June 322 graduates from twenty different states attended the banquet in the Pendennis Club and the main dining room was filled to overflowing. The next week the ball room of the Brown Hotel was reserved for the night of June 3, 1925, and preliminary work started to make the 1924 record. From the Medical School, preliminary announcements and notification slips were sent out early last month to about 7,000 Alumni scattered all over America, Mexico and other foreign countries. Already replies have been received from about 150 Alumni, giving notice that they will be back for the Week of Alumni Clinics, June 1-6, and the annual banquet on Wednesday, June 3.

The oldest Alumnus so far signifying his declaration of coming back was graduated from the old Louisville Medical College in 1876. He is Dr. B. H. Blair, of Lebanon, Ohio. He is still practicing and has with him his two sons, both active physicians. Dr. Blair will celebrate his forty-eighth anniversary in June. The next oldest Alumnus, so far, is Dr. Josiah F. Jones, who was graduated from the old Hospital College of Medicine in 1879. Doctor Jones will celebrate his forty-fifth anniversary in June.

An Alumnus, Dr. LeRoy Long, Louisville Medical College, 1893, Dean and Professor of Surgery of the University of Oklahoma School of Medicine, Oklahoma City, Oklahoma, will preside at the banquet as toastmaster. Dr. Charles P. Emerson, Dean and Professor of Medicine of the University of Indiana School of Medicine, will be the principal speaker. Doctor Emerson is a national authority in the fields of social and environmental medicine and prominent in the councils of the Association of American Physicians and the Association of American Medical Colleges.

An elaborate program of clinics is being arranged by the faculty of the School of

Medicine to be held at the City Hospital for the benefit of the Alumni. Dr. Long will hold a surgical clinic and Dr. Emerson, a medical clinic by courtesy of the local teachers.

At least 500 graduates are expected to return for the week of clinics and banquet. A particularly large delegation is expected from Lexington and Frankfort. The complete program of the clinics and social affairs of Alumni Week will be sent out to all graduates and physicians in the State of Kentucky by the first of May and about 7,000 numbers of The Alumni Bulletin of the School of Medicine. The Editorial Board of the Bulletin extends a cordial invitation to all physicians in Kentucky to avail themselves of the Week of Alumni Clinics which are given without charge. To this extent the University of Louisville is encouraging post-graduate teaching.

The local committee in charge of the alumni banquet consists of Dr. W. Barnett Owen, Dr. Emmet F. Horine and Dr. Stuart Graves.

The local committee for arranging for Alumni Clinic Week consists of Dr. Guy Aud, Dr. Claude T. Wolfe, Dr. John Walker Moore and Dr. H. H. Hagan.

The Alumni Week will be featured by reunions of all graduates of the old schools of the years of 1915, 1905, 1895, 1885 and 1875. The local committee in charge of classes consists of Dr. L. W. Neblett, Dr. Emmet F. Horine and Dr. H. A. Davidson.

THE PROTEAN QUACK.

The first question that occurs to an honest person relative to this subject is "Why does a person become a quack?" The answer is simple—he has found an easier method of making money by promoting his sick and weak-minded brothers and sisters of the human race than by any other means and he is willing to prostitute himself, his present and his future for the blood money that he can wring from suffering, uninformed, guileless souls.

There are many types; from his protean ability he gets protection. Usually plausible and suave, he finds that a slight air of mystery or affecting great dignity and deep thinking is usually helpful, but his greatest strength is

in being a close student of humanity—his power of adaptation is remarkable. He must advertize himself but there are all methods of doing this. That procedure is adopted which goes best in the particular part of the country he is in or with that particular audience which he is trying to reach.

We all know the adverting fakir and the patent medicine type, and the bold, blatant methods which they adopt. Their extravagant claims which are flattered into the very face of truth are recognized as falsehoods by many persons—but not by all, and it is one of the greatest crimes of our present day civilization that these individuals are allowed to delude the public and grow fat at the expense of suffering humanity! This type is sharp and keen, knowing that he plays the wolf's game he usually knows the law and its limitations as well as the best lawyer and though he frequently scrapes himself against the penitentiary door, he relatively seldom sees it from the side which we wish he could. He is a dangerous criminal at large.

A rather sad type is the individual who thinks he has saved himself from the grave by this or the other procedure and from his single case he generalizes about the whole human family. Sometimes this type is honestly mistaken but usually he is making a living out of his preaching and his honesty and sincerity together with the truth of the story as to how he cured himself are open to serious questioning.

Another brand frequently met is pleasing in his manner, sharp in his methods, with compliments for everyone and malice toward none, a self-appointed authority who goes about uttering half truths, frequently quoting or misquoting recognized authorities, but always getting a financial return for his efforts. The more carefully you examine into this latter statement the more you will be rewarded by locating the "string" to the "Free Lecture," "Free Consultation," etc. He usually has a text that is extremely popular and a method of development that is extremely pleasing—to the uninitiated.

Two subjects that greatly appeal to the quack for his text are physical exercises (of various types) and diets (usually of the freak variety). They make their subjects more or less dramatic and quote statistics that are staggering, even if not true. The limitation of the honest application of both of these subjects to the whole program of health is at once recognized by anyone who is in touch with the situation.

When other indictments of the quack have been unanswered the good-natured but unwary public usually takes the attitude that the quack does no particular harm. Does no

harm deliberately uttering untruths and half-truths? Does no harm by attracting attention to the unimportant at the expense of the important? Does no harm in causing the loss of valuable time, trying his fake method or medicine, while the condition may pass from the curable to the incurable stage? If this isn't actual harm, what is?

We must realize that there are few subjects about which the public knows as little as their own bodies and therein lies the advantage of the quack; which he has not been slow to realize. With this admitted lack of information on the part of the public relative to health matters, how can an individual find out if a stranger who claims he is the representative of some national health agency is really honest? If one happens to be in touch with things medical it is usually easy in a few minutes conversation, to judge of his training and experience and the character of the organization which he represents but if one lacks such information, why not appeal to the constituted authorities? Call your local department of health or your state health officer. It is inconceivable that an honest representative of a bona fide health organization will enter your locality like a thief in the night! And if you wish to know his history from its earliest beginnings write the American Medical Association—they have the records of all such fakirs and will be glad to answer your questions.

Don't take the word of the governor of an adjoining state, of the mayor of a nearby city or a prominent citizen in your town, well intentioned though they may be, they are not authorities on health matters.

J. E. RUSE, M. D.

AGAINST MEDICAL DEFENSE.

At its annual meeting held in Covington on December 4, the Campbell-Kenton County Medical Society, after a lengthy debate, resolved: "This Society go on record as opposing any further payments into the State Medical Defense fund." Through an oversight this action has not heretofore been published in the JOURNAL.

The Campbell-Kenton Medical Society is the second largest in the State. It is one of the best and most effective medical organizations in the country. Their opinion on any subject of medical economics is, therefore, entitled to due consideration and great weight. If every county society were as well organized as this one there would probably never have been any necessity for medical defense. Until they are, the editor of the JOURNAL is doubtful about whether the profession can afford to discard it. Of course, this is merely

his personal opinion and the matter is one wholly under the control of the House of Delegates and since both Logan and Campbell-Kenton County Societies have instructed their delegates to oppose its continuance they will naturally receive careful consideration at Owensboro. The JOURNAL urges other county societies to carefully consider the matter that their delegates may reflect the views of the whole profession when the matter comes to a vote.

ORIGINAL ARTICLES

THE STATE HOSPITALS FOR THE INSANE.*

By IRVIN ABELL, Louisville.

In 1920 the State Board of Charities and Corrections and the Commissioner of Public Institutions invited Drs. Sidney J. Meyers, Stuart Graves, A. L. Bass, J. J. Moren, Arthur McCormack, S. Watkins, George Day and the writer to serve as an advisory committee on the professional care and treatment of the wards of the State entrusted to their supervision. In December of that year the first meeting was held and the Advisory Staff of the Board of Charities and Corrections formed with the above named members. No authority has been delegated to it, it has received no remuneration other than the satisfaction derived from public service, and its status has been purely and simply an advisory one. It has served in this capacity since its organization, losing by death, in 1923, a valued member, Dr. Sidney J. Meyers, and acquiring in the same year the service of Dr. H. B. Tileston relative to the dental work in the various institutions. Members of the Advisory Staff have at various times visited all of the charitable and penal institutions, including the Central, Eastern and Western Hospitals for the Insane, the Frankfort Reformatory and the Eddyville Penitentiary, the Greendale School of Reform and the Feeble Minded Institute at Frankfort and made a survey of their needs from a medical and therapeutic standpoint.

To one who has not had the opportunity of making a personal investigation it is as difficult to convey an adequate conception of the conditions that existed in the asylums before the Kentucky State Board of Control for Charitable institutions and still later the State Board of Charities and Corrections came into existence as it is to visualize the improvement in the scientific treatment of the

mentally ill that has been inaugurated during their regime. A splendid advance was made during the regime of the former, the intelligent and well directed efforts of the Board and the superintendents of the various institutions, Drs. Goodson, Peddicord, Sights, Kehoe and Gardner, raising the plane of the professional service and treatment by the inauguration of more careful study of the individual cases, regular staff meetings, a limited dental service, the establishment of training schools for nurses, the segregation of pellagra and tuberculosis, the introduction of departments of manual training, industrial and domestic science, the abolition of restraint and the disuse of the name "Insane Asylums," substituting therefore "State Hospitals." Unfortunately, with the exigencies of politics this Board was discontinued and much of the good that was accomplished by it was allowed to lapse. With the establishment of the present Board of Charities and Corrections the work of improvement has again gone forward, reforms inaugurated prior to 1915 and allowed to lapse have been reinstated and much additional work of constructive character has been instituted in many lines with resultant marked benefit to the service.

A few years back the physical properties that housed the insane merited the name of asylum, a refuge or restricted home where custodial measures alone were employed; today they merit the name of hospitals since remedial treatment is restoring a fair percentage to the ability to again become useful citizens and live in harmony with community life. The physical properties have been and still are pitifully inadequate for the proper housing and treatment of the insane and are a far cry from what modern medicine regards as being proper for the hospitalization of such patients. Lay people have heretofore had not the faintest idea as to what might be accomplished in the treatment of the mentally sick, feeling that the vast majority of such cases were hopeless and that when the unfortunate victims had been placed where they could not harm themselves or others their obligation in the matter had been fulfilled. It is the duty of the medical profession to educate our fellow citizens regarding mental disease, to convince them that its presence implies no stigma, to teach them that many are curable, and that many others can be improved to the extent that they are able to resume the responsibilities of citizenship, in other words that the mentally ill deserve the same consideration, and to the same degree, scientific study, care and treatment as do the physically ill and that if given this a fair proportion

*Read before the Kentucky State Medical Association, at Louisville, September 22-25, 1924.

may be confidently expected to recover; but, in order to obtain such results it is necessary to equip and maintain the state hospitals on the plane of efficiency indicated by present day knowledge. For a period of years the average stay of patients in the Western State Hospital for the Insane has been eleven years as contrasted with an average stay of five years in a properly equipped hospital in one of the Eastern State. Viewed from both humanitarian and economic standpoints it behooves Kentucky to make the needed improvements to place the hospitals for the treatment of the insane on a parity with those for the treatment of physical ailments to the end that remedial cases may be more rapidly cured or improved and discharged to lives of usefulness and happiness. Much has been accomplished by the Board of Charities and Corrections, by Commissioner Byers and by Drs. Jilson, LaRue and Durham, but much remains to be done before the state can feel that it has discharged its full duty to its wards. In 1920 of the nearly 4,500 patients in the state hospitals, excluding those admitted and examined during the regime of the Kentucky State Board of Control for Charitable Institutions, but few had ever had a physical examination during their institutional life and none had had the benefit of X-ray or laboratory investigation. There were no records other than the commitment papers, no histories, no charts of clinical findings, progress or treatment. The medical personnel of the hospitals were untrained in psychiatry and in number were insufficient for even the medical care of such a large number of patients: three physicians to treat 1,500 inmates and at the same time carry the burden of the executive and administrative duties of the institution were obviously carrying an impossible load. There were no consulting staffs, no trained nurse corps, and no dental service, in short, the state asylums were no hospitals for the treatment of the insane but boarding houses where unfortunates were given custodial care until time or death relieved them of their mental infirmity.

Be it understood that there is no criticism, direct or implied, of the many splendid men comprising the medical personnel in bygone years, some of whom as indicated above have been very active in elevating the then existing standards, but of a system of control which in the light of modern knowledge and humanitarian ideals has become obsolete.

With the advent of the new regime the medical personnel has been increased as far as means allowed and the services of men who are psychiatrists by predilection, training and experience secured; where and when

feasible, graduate and undergraduate internes, as well as part time residents have been supplied and it is the hope of the Advisory Staff that the medical service in these hospitals will be brought to such a standard that an internship in them will be acceptable for the hospital year of the college curriculum. The three hospitals have been supplied with the following consulting staffs:

WESTERN STATE HOSPITAL—Surgery: Dr. J. G. Gaither, Dr. Robert Woodard; Eye, Ear, Nose and Throat: Dr. H. O. Beazley, Dr. Manning Brown; Laboratory and Medicine: Dr. J. E. Stone, Dr. F. M. Stites; X-ray: Dr. W. E. Gary.

EASTERN STATE HOSPITAL AND GREENDALE REFORM SCHOOL—Surgery: Dr. David Barrow, Dr. Charles Vance; Medicine: Dr. John Scott, Dr. Charles N. Kavanagh; X-ray: Dr. J. W. Pryor, Dr. J. C. Lewis; Eye, Ear, Nose and Throat: Dr. J. A. Stucky, Dr. W. N. Offutt; Laboratory: Dr. W. R. Pinnell, Dr. E. S. Maxwell; Neurology: Dr. G. P. Sprague, Dr. F. H. Clarke; Urology: Dr. Carl Wheeler, Dr. Wm. Briggs; Syphilis: Dr. J. S. Chambers, Dr. Josephine D. Hunt; Dermatology: Dr. L. H. Mulligan,

CENTRAL STATE HOSPITAL—Surgery: Dr. H. Hagan, Dr. F. G. Aud; Urology: Dr. Owsley Grant, Dr. Claude Hoffman; Neurology: Dr. J. J. Moren, Dr. T. F. Hale; Laboratory: Dr. Stuart Graves; Dermatology: Dr. W. J. Young; Medicine: Dr. Rowan Morrison, Dr. Morris Flexner; Eye, Ear, Nose and Throat: Dr. A. L. Bass, Dr. M. E. Pirkey.

While this paper deals only with the state hospitals it will be of interest to you to know the State Reformatory and Feeble Minded Institute at Frankfort and the Penitentiary at Eddyville have been supplied with Consulting Staffs of recognized merit and efficiency.

The cooperation and help of the Consulting Staffs are of great assistance to the medical personnel or resident staff of the hospitals, giving to them the benefit of expert advice and consultation in their respective fields as needed. The Advisory Staff wishes to take advantage of this opportunity to express to the members of the Consulting Staffs its profound appreciation of their public spirit and civic interest in helping to place the medical service of the state hospitals upon an efficiency basis.

To give you some idea of the work done and its value to the institution may I quote to you excerpts from a report of the diagnostic staff of the Eastern State Hospital covering the period from March 1, 1922 to February 1, 1923; all patients had the fol-

lowing routine examinations:

Physical Examination, Mental Examination. Urinalysis, Examination of feces, with particular reference to parasites, Blood analysis which included hemoglobin estimation, red, white and differential cell count with Wasserman reaction.

The following is a resume of conditions found as result of this routine examination. The status of these patents, i.e., whether dead, discharged, or paroled has been included:

Male and Female Patients	No.	Dead	Dis-	Pa-
			miss	roled
Dementia praecox (all types)	90	0	6	30
Manic depressive (all types)	77	8	2	22
Epileptic psychosis	20	0	1	5
Alcoholic psychosis	13	2	4	3
Paralytic psychosis	2	0	0	0
Senile psychosis, simple deterioration	47	10	2	2
Senile psychosis, arteriosclerosis	11	7	1	1
Psychoneurosis, hysteria	3	0	1	1
Psychopathic personality	2	0	0	2
General paralysis	19	9	0	4
Mental deficiency	39	1	4	6
Imbecile	1	0	0	0
Infections psychosis	3	0	0	1
Idiot	4	0	0	0
Drug addict	5	0	1	4
	336	37	22	81
No diagnosis	24	4	16	8
TOTAL	360	41	38	89

Physical findings in cases, male and female, complete from March 1, 1922, to February 1, 1923:

Hypertension (160 or more)	22
Hypotension (100 or less)	3
Mitral insufficiency	13
Aortic insufficiency	3
Aortic roughening	5
Myocarditis	5
Tuberculosis, observation	10
Albuminuria (trace or more)	44
Leucocytosis (10,000 or more)	32
Eosinophilia (5 per cent or more)	48
Glycosuria	10
Anemia, secondary	19
Oxaluria	18
Ascariasis	12
Uncinariasis	9
Hyperthyroid	3
Hypothyroid	2
Hypopituitary	5
Ilypogonad	1
Syphilis	11
General paresis and Cerebro spinal s phils	19
Arteriosclerosis	10
Subcutaneous tumors	1
Conjunctivitis	1
Blepharitis	1
Chronic tonsillitis	10
3rd Nerve paralysis	1
Whipworm	1
Adherent iris	1
Hernio inguinal direct	2
Urticaria	1
Hernio inguinal indirect	3
Bronchitis, acute	1
Tapeworm	1
Aene, vulgaris	1
Torticollis	1
Tumor, fatty	1
Scoliosis	3
Asthma	2
Paraplegia	1
Kyphosis	2
Hemiplegia	1
Cardiac hypertrophy	10
Lateral sclerosis	1
Tachycardia	1
Cholelithiasis	1
Chronic interstitial nephritis	8
Chlorosis	1
Splenomegaly	1
Periapical infection, teeth	1
Pyorrhea	1
Caries	1

The list of physical findings compiled below are taken from the charts of patients admitted prior to March 1, 1923. These patients received only a physical examination. There were approximately 1,200 examinations:

Pellagra	2
Acne	15
Syphilis	75
Paget's disease of breasts	1
Anemia, secondary	150
Chlorosis	10
Aortic roughening	44
Aortic insufficiency	12
Hyperthyroidism	30
Hemiplegia	8
Scoliosis	11
Pterygium	15
Hernia ventral	3
Hernia, inguinal	9
Bronchitis, chronic	15
Tuberculosis, pulmonary, observation for	60
Obesity	20
Endothelioma	3
Piloid tumor	4
Adenoma	10
Eczema	4
Myocarditis	15
Hypotension	30
Hypertension	237
Mitral stenosis	13
Cardiac irregularities	44
Mitral insufficiency	50
Perineal lacerations	18
Asthma	10
Emphysema	5
Prolapse of uterus	11
Retroversion	10
Cervical lacerations	18

Approximately 800 patients were examined for diseases of the eye, nose and throat. The following is a list of the physical findings:

Deviated septum	310
Hypertrophied turbinates	115
Ethmoiditis	30
Nasal Spur	8
Nasal polypi	10
Perforated septum	5
Ulcerated septum	10
Fracture nasal bone	1
Chronic tonsillitis	135
Hypertrophied tonsils	25
Chronic pharyngitis	5
New growth on tongue	1
Bifurcated uvula	3
Retinal hemorrhages	3
Old healed trachoma	3
Acute catarrhal conjunctivitis	2
Senile cataract	4
Central opacity of lens	2
Calcified cataract	3
Adherent iris	2
Cloudy lens	2
Astigmatism	2
Squint	10
Traumatic cataract	3
Early optic atrophy	6
Cloudy vitreous	4
Incipient cataract	23
Hazy disk margins	3
Myopia	5
Optic atrophy	1
Glaucoma	2
Choroidal atrophy	4
Choroid-retinitis	3
Phthisis bulbae	1
Chronic hypertrophic rhinitis	2
Perforated ulcer, soft palate	1
Opacity lens	1
Immature cataract	16
Neuro-retinitis	1
Traumatic cataract	2
Incipient glaucoma	1
Keratitis, cicatricial	2
Aluminuric retinitis	1
Atrophic rhinitis	1

From a study of this report it at once becomes apparent that the diagnostic study

made upon patients in the state hospitals to-day is fairly complete and it is equally obvious that appropriate treatment based on data so obtained must of necessity result in an increased number of cures and improvements of the mental ailments for which such patients were committed.

Mr. Burdette G. Lewis, Commissioner of Institutions and Agencies in New Jersey is responsible for the statement that 80 per cent of the cases of functional insanity in the Trenton, N. J., Hospital for the Insane have been cured; with adequate equipment and personnel similar results can be obtained in Kentucky.

Full time and part time dentists have been employed in so far as finances permitted, the service consisting of periodical examinations, extractions, prophylactic treatments and plastic fillings.

X-ray and clinical laboratories have been installed in each of the hospitals and a comparatively uniform system of records adopted. Since such adoption each patient admitted has been thoroughly examined as indicated above, the findings recorded and the treatment and progress accurately noted in the after-histories; as time and help permitted the old patients have been given the same study until at the present time practically all have been so examined. This survey of old patients seemed at first an insuperable task, but the energy and executive ability of Drs. Jilson, LaRue, Durham and their associates are of no ordinary type.

Makeshift observation wards have been utilized for the study of incoming patients but the antiquated buildings do not lend themselves to a proper arrangement for this purpose; nor do they permit of a satisfactory segregation of custodial, remedial and epileptic cases; separate quarters have been with difficulty provided for the tuberculous. Although highly desirable, in fact one might say essential, it has not been possible to install hydrotherapeutic departments for the treatment of acute cases, nor to provide isolated buildings or wards for the disturbed ones. If the state appropriation permitted of a more satisfactory arrangement for the study of incoming patients the segregation of the custodial cases and the institution of proper treatment for the remedial ones would result in a material reduction of the hospitalization of the latter below the present average.

Occupational therapy is employed to the extent that limited resources and space permits; with proper buildings and acreage this department could be expanded and amplified with immense benefit to the inmates and in-

cidentally afford a reasonable financial return to the state. Splendid work is being done with the limited social service available, one paid worker at the Eastern, one at the Western and three at the Central State Hospital. A complete social service department that would secure accurate information as to home conditions and afford a proper follow-up would permit of more paroles, but this again calls for funds which are not available. To return a restored or improved patient to undesirable environment would be but to invite a return of his or her mental malady and is to be avoided only by a functioning social service, or by retention in the hospital. The aim of the Board is to develop extra-mural activities in behalf of the mentally deranged or those border line cases which may easily become so by establishing and maintaining mental clinics and by better follow-up after care work amongst those who are suitable to leave the institutions; by so doing, to prevent or at least forestall the untoward symptoms incident to mental derangement that society may be better protected on the one hand and that the mentally deranged may be more intelligently and rationally handled on the other.

As soon as feasible the re-establishment of training schools for nurses or else the employment of a limited number of graduate nurses for the purpose of caring for the acutely ill, both mentally and physically, and for the supervision and instruction of ward attendants is highly desirable. Trained nurse supervisors of mature years and experience would be able to train the more intelligent of the ward attendants in such duties as are required at these institutions and would be able to develop a staff that would fully and satisfactorily meet all the requirements.

At the present time the emergency surgery is being well taken care of in all the institutions and, in some, remedial surgery has restored not a few inmates to health. This has been made possible by the willingness of outside hospitals to take selected cases. With the equipment of infirmaries such as the one now at the Eastern State Hospital much needed work of a remedial character can be successfully undertaken with resultant benefit to the service. Everyone familiar with the situation as it exists in Kentucky would welcome a change as regards the form and manner of commitment to the State hospitals. The present procedure is archaic and does not conform to the standards of modern psychiatry. All that is now required is a statement from two physicians that John Doe is of unsound mind. The aforesaid John Doe is then carried to the hospital, his only record being the

commitment papers. A proper history, personal, family and environmental, together with a thorough examination, physical, mental and laboratory should be obligatory before commitment is authorized by court in cases where facilities and time permit of such study. Voluntary admissions to the breaking down, border line cases, as well as emergency admissions should be authorized without the formalities attendant upon the regular procedure necessary for entrance of a patient. A change in form of commitments was urged as far back as 1915 by the then existing board and this has been repeated by the present board but so far no definite steps have been taken to bring it about. The urgent needs of the State Hospitals for the Insane may be summarized as follows:

New buildings, constructed, arranged and equipped according to the needs of the specialized service for which they are intended.

Adequate medical personnel whose education and training have fitted them for the treatment and care of the insane.

Infirmaries facilities for the care of the physically ill.

Space and means of giving occupational therapy to all capable of being benefitted by its employment.

Separate quarters for custodial, remedial, epileptic and tuberculous patients.

A competent and adequate nursing staff.

An amplified social service department.

These needs are fundamental and basic if the state hospital service is to be that which modern knowledge demands for the scientific treatment of mental disease, which means, to provide special care and treatment to mentally deranged persons in every practicable way which will promote their recovery, if possible, or their improvement so that they may become re-adjusted to society and become as nearly self-supporting as practicable.

The Board of Charities and Corrections and the Commissioner of Public Institutions have ever been receptive and sympathetic to suggestions for the betterment of the professional service, the limitations of their compliance with such being solely those imposed by inadequate funds. The Advisory Staff desires to spread upon this record the sincere appreciation of the medical profession for the unselfish and untiring efforts of the Board of Charities and Corrections in behalf of the Public Institutions of Kentucky.

DISCUSSION

Jno. J. Morris: Louisville—I noted in the Sunday Courier Journal that practically one-fifth of the State taxes was expended toward charities and correction. The people of Ken-

tucky spend more for charities and correction than they do for the general government of the correction stands second.

On account of the crowded condition of the State Hospital the Board is confronted with the possibility of either sending many of the harmless inmates to their homes, or stop receiving any more patients.

The Eastern Kentucky Hospital held for a short time a mental clinic. It was successful, but from lack of funds and personnel, was abandoned. New York state has about thirty-five; 4800 patients visited these clinics in 1923. Fifty per cent were paroled or former patients of the State hospitals. In 1923, New York had 3300 paroled patients, the largest number of any previous year, which is attributed to the success of the mental clinics being able to advise and counsel former patients, and thereby relieving the institutions of their care.

These mental clinics can do even better work, they can take care of the neurotic child and young people, detecting endocrine disorders, physical diseases, defect, bad environment, etc., which ultimately terminate in mental disease.

Some clinicians say that fifty per cent of the cases of insanity can be attributed to syphilis, alcohol, and arteriosclerosis, all three of which can to a greater or less extent be influenced by early care and attention. If suitable precautions would be given these cases, how many would be saved from despondency, despair, and dependence.

How many children could be saved from mal-behavior, bad habits, and a neurotic life by instructing the parents concerning environment, training, etc. New York state shows that fifty per cent of their clinic patients were in no way connected with the hospitals. They sought relief for various mental illness, and doubtless many were kept from asylums.

The cost of these clinics has been estimated to be \$5,000-\$25,000 per year. When you consider the actual cost to the tax payer, to say nothing of the cost to the families, is it not reasonable to ask for measures that strike at the base, and possibly prevent insanity in many cases. It has proved its value in other states, why not in Kentucky?

George H. Day, Louisville: There are several points which Dr. Abell and Mrs. Semple have not covered to which I wish to speak at this time. Possibly you can't conceive of these attendants slaving for twelve or fourteen hours a day, and then instead of a nice comfortable, quiet quarters for rest and relaxation, they are compelled to sleep and live in that atmosphere of turmoil and strife in the wards. You can't conceive of that. It is almost impossible to think of it. But at the same time Dr. Jillson and his associates deserve plenty of credit. To make matters

worse, by an act of the recent legislature, instead of improving the conditions, what are we going to have now? We are going to have all the narcotics throughout the state sent to these institutions. Just imagine that. What are we going to do about it? What we can do is this: By organized publicity this organization can get in this state anything it wants. There isn't a politician in this state that is not influenced by public opinion. You know that, and the doctors in this state can start this thing and finish it by getting the public opinion and putting the politician where he will be afraid to do the things that he has done in the past.

Fourteen years ago when the prison commission asked me to undertake the elimination of syphilis in the state institutions, gentlemen, could amuse you by the hour telling you the obstacles that were thrown in my way for the elimination of syphilis. I don't know what in the world the politicians wanted with syphilis but they kept me from treating it successfully, in several institutions.

I went to one institution. The problem was simple. Clean out the inside and take them as they come in and we will have an institution clean of syphilis. But they had the warden of the Western Penitentiary who met me at the train and he said, "Now, look here, this stuff will kill everybody you give it to. I am going to hold you personally responsible if you kill any of these men."

Of course, I was within the walls and was in jeopardy. I went to another institution and a doctor said, "You can't give that stuff in here, we won't have it." The prison commission went to an employee and begged him to allow me to come there and teach the staff how to give it. No sir, he wouldn't allow his superiors to have me give salvarsan. Just imagine that sort of thing.

In each successive institution I had the same trouble. Gentlemen, how everything is different; there isn't so far as I know, an active, untreated syphilitic in any institution in the state. In a recent investigation at Frankfort when it was found that \$4,000 was spent for salvarsan, one of the Senators wanted to know if the dietician couldn't give that just as well as the doctor. "They oughtn't to have doctors giving that stuff."

Stuart Graves, Louisville: Doctor Abell's paper has been so comprehensive that a discussion of it will help only by emphasizing one of its numerous features. The State institutions of Kentucky today need nothing any more than they need a well qualified, specially trained, reasonably compensated professional staff. It is so much easier in most institutions especially those not wholly responsible to authorities who are not familiar with the more progressive types of similar

institutions in other states, to satisfy material needs, that it is well to emphasize particularly the need for the right kind of a professional staff. In years past the non-professional side of our Kentucky institutions has been much better cared for than the professional side. There is no implied criticism here of the doctors who have served in these institutions in years gone by.

Today, with the people at large and the legislators becoming more familiar with the work done elsewhere for the insane, conditions in our own State institutions are improved, but much remains to be done; and it is in this respect especially that members of our State Medical Society and the medical profession of the State at large, can render these institutions the greatest service by using their influence to see that these institutions are equipped with adequate and properly trained physicians.

Imagine for a moment any other than an insane hospital with a population of from twelve to eighteen hundred patients manned with five to seven doctors, including the superintends and assistant superintendant! Imagine such men paid at the rate of \$100 to \$200. I think that covers the top notch salary per month without maintenance for their families! Imagine a superintendent living with his wife in two rooms without a private bath, without even a room for a child! Imagine a junior member of a staff without hope of sufficient income, no matter how long he stays, to enable him to live as any educated man is entitled to live; imagine such an underpaid doctor without proper equipment or assistance with which to do good work, even though he is willing temporarily to sacrifice himself!

W. E. Gardner, Louisville:—I have prepared no formal discussion of Dr. Abell's paper, but I am sure there is no one who has been connected with one of these state institutions for a number of years, as I was with this institution for a period of ten years, who could help but be deeply interested in the progress of that institution. This has been my position from the time that I left this institution about ten years ago. I do feel however in justice to myself and to some of my co-laborers, some of the ex-superintendents of the institutions who served at either the time I did or preceding that time, that I should say that it is undoubtedly true that for a number of years, even preceding the enactment of this very wonderful law of 1920, there were certain periods in which a considerable amount of constructive work was done within the institution. This, of course, has depended largely upon the initiative of the personnel of the institution at the time and upon the financial support that the institutions were able to obtain.

After all however the question comes back to financial support for these institutions. It has been the cry for years. I don't believe the ques-

tion of personnel will be difficult to work out if the public can realize the importance of providing suitable financial aid for our public charities. It is not a bright picture so far as taxes are concerned. The wards of all states throughout the United States, the insane wards, are gradually increasing, and apparently increasing in excess of the increase of population. This is somewhat misleading. Perhaps one would think, at first glance, that insanity is increasing more rapidly than the increase in population. I doubt if this is true, but since more public confidence is being given to the public institutions through the appointment of non-partisan boards, and especially non-salaried boards, who give so much of their time unselfishly to the improvement of these institutions, that more people are being committed to the public institutions.

I would just like to try some figures in this respect that were obtained from an article by Dr. Horatio M. Pollock who is the state statistician of New York. This was published in the *American Journal of Psychiatry* of January of this year. In 1880 there were in all public institutions for the insane in this country, 40,942 patients, or about 81.6 per 100,000 population. In 1890 this number increased to 74,028 or 118.2 per cent to 100,000. In 1904, there were 150,151, over 183.6 per 100,000. In 1910, 187,791 or 204.2 per 100,000. In 1918 there were 223,957 or 217.5. In 1920, there were 232,680, of 220.1 per 100,000.

In other words, in 1880, there was one insane person in public institutions to about 1,165 population. In 1910, there was about one insane person in public institutions to 500 population, and in 1920 the proportion is about one to 450.

Dr. Pollock goes ahead to state in his article that while a great deal is being learned as to the cause and nature of mental diseases, and, of course, the best facilities have been provided in New York state and number of the eastern states for a number of years, there is some question as to whether there is an increase in the percentage of recoveries. In fact, he says that the outlook for an increase in the percentage of recoveries and the prevention of insanity is not a rosy one, because strange as it may seem, in fact it is more or less paradoxical, that as the number of physical diseases becomes reduced and the number of people who suffer from physical diseases becomes reduced, the average length of life is prolonged and that many forms of mental diseases which occur during the active period of life and during the senile years have a tendency rather to increase the number of cases of insanity and thus fill up our public institutions rather than decrease them.

It is hardly necessary to say that so far as our personnel was concerned in years past, during the time that I was connected with the in-

stitution, and when Dr. Sights was superintendent of the western state institution, and Dr. Furnish who was one of my predecessors at this institution, it is almost inconceivable under what difficulties we labored and, in fact, what might be accomplished sometimes under those handicaps. Of course, physical examinations were made of all the acute cases coming into the institution. It was impossible with the inadequate personnel to repeat routine examinations and keep follow up notes on these cases. We had had not sufficient clerical help or sufficient staff to keep extensive records of cases. There was an attempt made during these years from 1908 to 1912 and later to make a routine physical and mental examination and some records of those mental examinations were kept which are on file now with the commitment papers in this institution.

The physical properties had to be kept up, had to be provided for, building were constructed at that time, which were absolutely necessary. This building in which we are meeting was constructed during the administration of Dr. Furnish who is here today. During the time that I was here we had the privilege of opening the tuberculosis pavilion, which was a crying need and, of course, which is very inadequate now for the population of the institution. A training school for nurses was established at that time, which has not been referred to and which went pretty satisfactorily for a number of years and which dropped into oblivion during the war, and which has not been re-established. Libraries were provided for the institutions, modern dairy barns were either built or created out of those that were in existence. Boiler houses had to be built, new boilers had to be installed, new floors re-constructed in many of the wards, battleship linoleum laid and things of that sort, all of which had to be done out of our per capita allowance with an occasional increase in appropriation possibly now and then for a new building or special repairs.

I think there has been a tendency possibly at times in those who are promoting propaganda for the improvement of these institutions, in our enthusiasm possibly, to not give proper credit to those who have labored in the past. I shall plead guilty to such an attitude myself, when we came into the institutions and when we thought we were getting the institutions out of politics. There is a tendency to compare what we are doing now with what has been done in the past to inspire confidence and interest, and sometimes the proper credit is not given to what has gone before. There is no disposition of that sort here as in the paper read by Dr. Abell.

This Board of Charities has been disposed to give proper credit for what was done in the past with our allowance and our personnel, and I

am sure that all of those who have labored in the institutions in the past under great handicaps are in hearty sympathy and in accord with the improvement of these institutions, and that we realize that they are our wards; that they are going to be an expense to the state; that we must meet the obligations, and if we are now spending one fifth of the total revenue of the state for the care of the prisoners and the insane and feeble-minded of the state, we will have to assume that responsibility and be prepared, perhaps, to distribute even a larger per cent of our revenue as time goes on.

REPORT OF A CASE OF INTRA-OCULAR MELANO SARCOMA.*

By R. W. BLEDSOE, Covington.

I wish to report a case of Intra-Ocular Melano Sarcoma because of its interest to me in as much as I was able to see it in its incipency and make a diagnosis very early.

In spite of the fact that prompt enucleation was not submitted to, at the time of operation there were no gross evidences of metastasis in the orbit nor has there been any reason so far, now six months since the operation, to suspect involvement of some other region of the body.

I wish to apologize for the appearance of the specimen which will be passed around.

This should have been mounted in a thick gelatin solution and in a glass container made especially for the preservation of eye specimens.

Unfortunately, however, at the time this was prepared, the instrument house did not have on hand the kind of glass we wanted, hence we had to use the only kind we could get.

Mrs. R., age 62 years, white, farmer's wife, consulted me on November 7, 1923, complaining that the sight of her right eye had suddenly become impaired on November 1, 1923, (one week previous).

On November 2, the vision was greenish in color. This disappeared in twelve to twenty-four hours.

Since then whenever the eye-lids are closed she can see shiny balls of light.

Upon examination her vision was found to be right 20-100, left 20-40.

Tension, right 22, left 16, with Sauter Tonometer, approximately right 32, left 26, with McLean instrument.

The right pupil did not react to light and the left was quite sluggish.

Eucatropin was instilled in the right eye to moderately dilate the pupil.

The fundus was found quite hazy.

At the bottom of the globe close behind the lens was seen a small, rounded, raised, blackish area, coursing over the top of which were several blood vessels.

Retinoseopic findings were plus 1 equals plus 50x90. No lens altered her vision, however.

Left eye with — 50 equals plus 1x90 the vision 20-20.

While feeling fairly sure that I was dealing with a Melano Sarcoma, I hoped it was only a deep hemorrhage and put her on K. I. to encourage absorption.

She reported to me on November 24, 1923 with vision of right eye reduced to counting fingers at three feet.

The tumor mass was almost up to the level of the iris margin. The red fundus reflex was still present.

Transillumination showed the growth to be much larger than at the time of previous visit.

The diagnosis of Melano Sarcoma was made and concurred in by Dr. D. T. Vail.

Urgent advice to submit to enucleation of the eye at once was not agreed to by the husband.

The case was seen again on December 10, 1923, at which time she could count fingers at six inches only.

The growth was much larger, some little red fundus reflex could still be seen in the upper part of the globe. Operation was still refused.

I did not see the case again until March 20, more than three months from the time of the last visit.

At this time the eye was painful and blind. The tension was 34 Sauter, approximately 44 McLean.

Not even light perception remained.

No fundus reflex was present.

In other words the eye was completely lost. Operation was readily consented to at this time.

The eye was enucleated the following day, March 21, 1924, and followed by an uneventful recovery.

I hope to keep in touch with this patient and if metastasis occurs will make a report of it before this association.

E. B. Blackman, pathologist makes the following report:

Gross pathology: On section a neoplastic mass, about size of a cherry, irregular in shape, occupies half of interior of the eye. Its growth starts at the chorionic layer adjacent to the entrance of the optic nerve and extends anteriorly, invading the vitreous, pushing retinal layer before it. The lens is flattened and cornea bulges; neoplastic mass is pigmented with dark brown pigment.

Microscopic section of a neoplasm shows an

*Read before the Eye, Ear, Nose, and Throat section of the Kentucky State Medical Association, Louisville, September 22-25, 1924.

irregular and disorganized tumor. Cells are numerous, irregular in size and held together by a fine reticulum of connective tissue. Throughout entire specimen fine, brownish, pigmented granules can be seen. Disorganized growth is especially noted. diagnosis: Melano Sarcoma.

TENDON TRANSPLANTATION OF EYE MUSCLES.*

By J. H. HESTER, Louisville.

By tendon transplantation is understood the transference of all or a part of a tendon from its normal insertion to a new one, in such a way that its physiologic function will be changed. The object to be gained by such an operation is not so much the restoration of function in a paralyzed muscle as the substitution of a normal one in its place.

Little in this particular field has been done in ophthalmology. Most cases of incurable muscle paralysis are dismissed as beyond surgical relief, or the operation of advancement of the paralyzed muscle with tenotomy of the contracting opponent is advised. In this way, in incomplete paralysis, good results may be obtained without doubt; but in complete paralysis of a single eye muscle I have never secured a satisfactory result by advancement with tenotomy.

Tendon transplantation has no doubt been of great benefit in general surgery. I see no reason why it should not yield the same results in Ophthalmic Surgery. As early as 1770 Missa restored function to a finger by substitution of other tendons to an extensor which had been severed and could not be sutured, since that time surgeons have doing this work throughout the world.

About the first work along this line in Ophthalmic Surgery was done by Parinaud in 1897. Motaïs did quite a bit of this work, the first he did was in 1898. The Motaïs operation has now become a rather popular method for the cure of Ptosis. Edward Jackson, Coffer and others did work along this line in 1907 and 1908. Dr. Woodruff, of Chicago, reported five cases in 1917, with fairly good results. Dr. O'Connor, of San Francisco, Cal., reported six cases in *The American Journal of Ophthalmology*, Nov., 1921. The majority of his cases were for ptosis and for the most part in children. I did my first Tendon Transplantation October, 1921, just before Dr. O'Connor's article came out. I showed the patient to our local society in November, 1921.

The symptoms in these cases somewhat depend on the cause of the trouble, however, in the majority of cases the following symptoms are found, deviation inward, outward, upward or downward. Binocular vision can be obtained only when the patient turns the head until both eyes focus together. With paralysis of the external rectus muscle the patient usually walks with head turned toward the affected side, headaches, dizziness and so forth.

Treatment—These cases should be informed that relief is possible in spite of the treatment laid down by the old text books of Ophthalmology. Cases of paralysis of ocular muscles should not be dismissed as incurable, while the majority of these cases can be cured by the proper operation where medicinal treatment has failed. An early diagnosis as to the cause of this condition is quite important as by proper medical treatment relief can be given in most of these cases, however, after having given medical treatment for two or three months without any results, then in my opinion the patient should be operated upon. I am now speaking of cases of complete paralysis. In cases of incomplete paralysis I would delay operation until it is certain that progress toward cure has ceased.

Case No. 1—Mrs. B., age 27 years, married when fourteen years of age, one seven months' child and one miscarriage during this marriage which covered a period of two years. Married a second time at the age of twenty-five, had two miscarriages during this marriage, personal history negative as to any venereal disease, Wassermann also negative at the beginning of present trouble, which dates back two years, family history negative. In spite of a negative Wassermann she was given the Anti-Syphilitic treatment without results. Her paralysis came on gradually, it was not complete until shortly before I saw her, it began by not being able to see at a distance for about six weeks, at the end of which time she appeared to be improving, later she began to see double and in six weeks more she had a complete paralysis. During her illness she had a number of dead teeth removed, her throat had never given her any trouble and looked perfectly healthy. I had a Wassermann made on this case when I first saw her, which was negative, however, I am inclined to believe this is a case of syphilitic paralysis, which is based on the personal history of having had so many miscarriages and abortions. When I first saw this patient I had her family doctor give her a course of specific treatment as I wanted to be absolutely

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sure that she could not be relieved by treatment before advising the operation. I studied on this case for quite a while as to what would be the best method of operation I finally concluded that the transplantation operation would give her the best results, technic of which is as follows:

I divided the fibers of the superior rectus muscle and severed the outer half of its attachment, brought it down to the external rectus muscle and had my assistant hold it there until I had done the inferior rectus muscle in the same manner, then I sutured them to the external rectus muscle at the same time tucking this muscle.

Case No. 2—Mrs. B., age 27 years, married at the age of 19 years, had two children during this marriage, both in apparently good health, was operated on four years ago by Dr. Willmoth, who referred her to me for her eye condition condition, no history of any venereal trouble, no misarrriages, Wassermann negative, family history negative, present trouble began four years ago with double vision and a drawing sensation of the left eye, this condition gradually grew worse. When I saw her in 1921 she had only partial paralysis so I did an advancement of the paralyzed muscle and a partial tenotomy of the opposite muscle, the results obtained here were good until about six months ago when she wrote me that her eye had gotten worse. I advised her to come to see me when convenient, so she came in about two weeks ago with a complete paralysis of the external rectus muscle, then I advised this operation which was done about ten days ago.

LATERAL SINUS THROMBOSIS.*

By CLAUDE T. WOLFE, Louisville.

Before proceeding to the report of two cases of Otitic Sinus Thrombosis it occurred to me that a general resume of the symptomatology might be in order, as introductory to the Clinical histories.

Lateral sinus thrombosis in most cases is a post operative complication. Only rarely is the condition diagnosed or even suspected when the mastoid has not yet been opened. In the latter case it is most often apt to be associated with very virulent infections and in patients with greatly lowered resistance, or in those mastoids that have received improper care and attention and have been permitted to go unoperated. The typical case of lateral sinus thrombosis presents a fairly distinct

picture occasioning little difficulty in diagnosis. This statement, of course, has reference to the uncomplicated advanced cases with the following symptoms fairly constant. Who would not say that the diagnosis is not complete in a case presenting rigors or prolonged chills, oscillating or pump-handle temperature at more or less regular intervals, enlarged posterior cervical glands, localized pain over the mastoid process, the emissary vein and along the jugular vein, marked asthenia, together with clear mentality and a positive blood culture. Early cases, however, do not present this pathognomic array of symptoms, indeed many of the cardinal ones are absent and with the possibility an endo-carditis, a pyelitis, pneumonia, malaria or erysipelas, etc., giving us one or several like symptoms, the diagnosis if not possible, to say the least, may be very confusing. The age of patient may be taken into consideration as it is generally agreed that sinus thrombosis is uncommon in persons below the age of seven or above forty years.

In the presence of tympanic suppuration, rigors are almost pathognomic, especially in the presence of optic neuritis. Mae Cuen Smith claims that ophthalmologic examination are indicated in all cases of mastoidectomy accompanied by chills and high intermittent fever and we are justified, in the writer's opinion, in exploring the sinus in all cases of suppurations of the middle ear or mastoid process if chills occur, with rapid or irregular rise of temperature, increased pulse rate followed by sweating and a high polymuclear percentage and leukocyte count. The fever is usually typically pyemic, in the early stages sweating is profuse and in the terminal stage almost constant.

In my rather limited experience I have failed to detect one symptom that is looked upon as a rather important link in the chain of diagnosis, the Crowe-Beck sign, i.e., the stopping of the jugular vein on one side by pressure which produces not only a choked disc but external evidence of dilation of even the superficial veins, such as the temporal. Beck gives this sign a rather important place and says that it is fairly constant.

We often find the sinus plate eored and apparently extensively diseased at the time of doing an acute mastoidectomy and should this patient, several days later, have a chill followed by a sudden rise of temperature which then assumes a septic character, with remissions below normal, with a blood count of from 15,000 to 20,000 white blood cells and a differential count of from 70 per cent to 85 per cent. Polys, supplemented by a positive

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blood culture, such a case offers no room for doubt as to the true condition. The above symptoms may be augmented by an edema and swelling located over the so-called emissary region, the cord-like tender jugular in the neck with enlargement of the deep cervical glands, and the patient have a pronounced euphoria, all aid materially in arriving at a definite conclusion. But on the other hand the literature abounds with atypical cases of sinus thrombosis discovered at post mortem examinations, many of which succumbed to the more serious complications following upon the unrecognized thrombosis. Unfortunately these cases do run irregular courses with irregular temperatures, without chills and with only mild mastoid symptoms.

From a diagnostic standpoint the X-ray, in the essayist's hands, has been of no help, but the examination of the ear discharge is of paramount importance, for in a given case with the afore mentioned symptoms present with an ear discharge predominating with the streptococcus or the streptococcus mucosus one's suspicion would be greatly aroused.

CASE NO. 1—Dr. C. G. S.—Male, Age 31 years, consulted me November 28, 1923, stating that about the middle of November, 1923, approximately one month ago, he became nauseated and that food was repulsive. Stationary objects seemed to move when he looked at them, with occasionally diplopia. Severe headache followed within a few days, being confined to frontal and occipital regions and nausea increased with occasional vomiting. Vertigo was also present. Consulted his family physician who purged him thoroughly which gave him but little relief. There were marked periods of remission and two weeks elapsed when he had an unusually severe headache with vomiting and vertigo when he was seen by a competent ear specialist.

At this point he related his past history in connection with his ear, stating that at the age of seven he had scarlet fever which left him with a discharging left ear and was operated presumably for mastoiditis. He stated that the wound behind the ear closed promptly but ear continued to discharge and to his knowledge was constant up to this time—twenty-four years later.

His physical condition had been good and with the exception of the inconvenience attending a foul suppurating ear, supplemented by a gradual loss of hearing on that side, he was not bothered until two years ago when he had two attacks of vertigo lasting a few minutes each. During the last attack he fell to the floor. No complications ensued and he resumed his work without interruption until one month ago.

He stated that the ear specialist whom he consulted was fearful that a meningitis was present and suggested an immediate operation upon the ear, which patient declined. Numerous laboratory tests were made, including a spinal puncture, the results of which I am not familiar with.

Patient stated that the day previous to consulting me the vertigo was so pronounced that he fell while in his office.

He was tender over the mastoid antrum and tip and pressure in this area seemed to increase his vertigo and nausea. Headache not constant. Examination of the ear showed the canal filled with a foul discharge of pus which when removed disclosed a large perforation in the drum in the posterior inferior quadrant. A lineal scar was present posterior to auricle which patient stated resulted from previous operation.

Ophthalmological examination revealed clear media and normal fundi. His Wassermann was negative.

The X-ray showed the right mastoid to be well ventilated, normal in size and free from infection. The left was of the sclerosed type, no cell walls shown. There were several areas of lessened density either due to air in the cells or gas from infection. The opinion of the Roentgenologist was that it was due to pus.

Blood examination showed 4,600,000 red cells; 16,600 white cells.

The discharge from the ear showed numerous diplococci, apparently pneumococcus and staphylococcus. The hearing in the ear was nil. The urine was negative. His temperature was 99 degrees F.

He was prepared for Mastoidectomy December 4, 1923, with the usual incision and after the periosteum had been retracted, a fistula leading to antrum was discovered which apparently existed from the previous operation. The bone cortex was eburnated and rather thick. A large cholesteoma filled antrum and middle ear. In this connection it might be interesting to note that the X-ray was of no help in diagnosing the presence of the cholesteoma. Entire tip removed. Sinus exposed over an area of 3-4 inch; its color was normal; there were no adhesions and pulsation was present. Posterior canal wall removed. Wound partially closed with deep and superficial sutures. Patient returned to bed in good condition. The following day about 7:30 had a severe chill lasting more than one-half hour, with temperature jumping from 101 to 105 degrees F., accompanied by profuse perspiration. Wound was inspected and all sutures removed as we were under the impression patient might be getting some absorption that accounted for chill and fever. Temperature stayed between 100

degrees F., and 103 degrees F., with rather profuse perspiration until January 4th, the fourth day following the operation, when he had a cold sensation lasting about one-half hour, with temperature going up to 104 degrees F. The dressings were changed at intervals oftener than usual and 5 per cent iodoform gauze was used as the odor from the cholesteomatous cavity was pronounced. The following day at 7 A. M., temperature was 99.6 degrees F., at 8:30 A. M. had a light chill and temperature went to 104 degrees F. by 1 P. M. Consultation was asked for and Dr. Dabney and Dr. Boggess saw the case with me. His leucocyte count on this day was 13,500, Polys. 79 per cent and Lymphocytes 15 per cent. The blood was examined for malaria but was not found. Blood cultures showed no growth up to this time, or later. His leucocyte count gradually went up to 24,000 with an increase in the Polys. to 83 per cent. Urine was always negative. Dr. Boggess went over the patient very carefully, reporting that chest showed evidence of a walled-off area in left side, possibly an arrested T. B.—otherwise negative. His temperature and chills continued until the twelfth day following operation, with patient gradually losing a little ground, when he consented to further operative measures. Persistent requests and advice to submit to further surgery had been stoutly refused for several days previous, as it was the opinion of Drs. Dabney and Boggess, as well as myself, that we were dealing with a sinus thrombosis and that no time was to be lost.

On the ninth day patient was prepared for second operation with the idea of further exposing the lateral sinus and going into it.

Patient had been taking the anesthetic not more than five minutes, when, without warning and while I was still scrubbing my hands, the sinus ruptured of its own accord. It may have been the unexpectedness or the gravity of the situation that suddenly presented itself, but it seemed to me that a geyser had suddenly commenced playing. As the bandage and dressings were still in place I jerked them off with my left hand and quickly packed a sterile towel into the wound with the other hand, controlling the hemorrhage. The anesthetic was then continued and Dr. Cleves Richardson ligated the jugular vein. Further surgery in the mastoid cavity was all but impossible due to the bleeding which followed the removal of the pressure. Dr. Dabney who assisted me in the operation was under the impression that sufficient exposure had been made of the sinus at the first operation. A clot was also discovered on the dressing which we presumed came from the sinus. A culture of this showed staphylococcus aureus. The wound was packed with sterile

strips of gauze and patient returned to bed in fairly good condition.

Dichloramin T. in oil was used freely in the wound which not only destroyed the odor so characteristic of a cholesteoma, but seemed to promote granulations. The temperature continued up to about 102 and 103 degrees F., for several days after which time a swelling was discovered in the neck, rather low down, which Dr. Richardson believed to be an infected lymphatic gland, the infection having extended down from the mastoid. This he opened and drained. The temperature promptly returned to normal and patient made an uneventful recovery, being discharged from the infirmary on the 33rd day of his illness.

CASE NO. 2—J. C. Age 8—Male—A rather robust child apparently in good physical condition consulted me Nov. 11, 1922 for an acute suppurative Otitis Media of the right ear.

The mother claimed that ear began discharging about one week previous and while the discharge had been rather profuse the child complained of pain in and below the ear and was given to restlessness at night. This ear has discharged several times in the past four years but under irrigation treatment it has subsided and apparently returned to normal. Tonsils and adenoids removed four years previous. Examination of ear revealed the canal full of pus, which when removed showed a rather large perforation in the anterior inferior quadrant. The perforation seemed adequate. There was some tenderness over the antrum and tip of the mastoid. Patient sent to Norton's Infirmary for treatment and observation.

A culture of the pus from the ear canal showed hemolytic streptococcus. His urine was negative. His blood showed 12,800 leucocytes. Polymorphonuclears 67 per cent. Lymphocytes 28 per cent, with temperature of 99 degrees F.

He was put upon boric acid irrigations every three hours, followed by alcohol drops, given a purge and put to bed. The discharge from the ear rapidly lessened as did his pain, his nights were comfortable and after five days was discharged from the hospital. At that time the perforation had closed to such an extent that it was scarcely perceptible and the discharge practically gone. The mother was instructed to continue the treatment at home and bring the child to my office at intervals for observation. The patient did not regain his strength as he should and had an afternoon temperature occasionally reaching 101 degrees F., with the discharge persisting, occasionally sufficient to fill the canal between irrigations. The question of operation was discussed and met with considerable

disapproval by the mother. On December 11, 1922, however, parents consented to his return to the infirmary.

The X-ray examination showed the left mastoid negative, while in the right the cell outlines were blurred from infection. Examination of pus from ear showed a gram positive cocci in chains. His white count was 8,650 and Polys. 79 per cent—Urine negative. The child was languid with poor appetite and a Widal was suggested by family physician which was negative.

A simple mastoid was done on December 12, 1922. The lateral sinus was found to be situated far forward and quite superficial and was uncovered directly beneath the cortex. All the cells were exenterated and wound closed with deep and superficial sutures except for drainage above and below. Wicks of sterile gauze were inserted into the wound for this purpose. Patient reacted from operation nicely. After forty-eight hours, however, temperature subsided but very little. It continued up to 102 and 103 degrees F., and patient was restless. A lumbar puncture was done on the 14th day of December 1922, which was negative. The wound was draining nicely and from a surgical standpoint was negative. On December 15th, or five days after the operation, patient had a chill lasting twenty minutes with temperature rising from 101 to 103.6 degrees F., followed by a restless and very uncomfortable night. Dressings were changed, both superficial and deep sutures removed.

The following day, complained of feeling chilly with another rise in temperature, not so marked as day before. This picture continued until December 19th, or the ninth day of the disease.

Temperature was not typical in its rise and fall of a sinus thrombosis and the general appearance and condition of the patient was not characteristic. He presented symptoms of an infected isolated area which might have been overlooked at time of operation.

Dr. Dabney kindly saw the case with me and was of the same opinion, and a second operation was done on December 20, 1922, Dr. Dabney assisting, in which every vestige of cellular structure was removed from mastoid. The entire tip removed through to aponeurosis. The dura was exposed. The lateral sinus from the knee downward for approximately 1 1-2 inches was uncovered. The dural covering of sinus appeared to be normal and was free from adhesions. Pulsation was distinctly present and we both felt that further surgery upon the sinus was not indicated. The wound was left open and lightly packed with 5 per cent iodoform gauze.

The following day patient was restless but

fairly comfortable with temperature continuing between 101 degrees F., in the morning and 103 degrees F., in afternoon. Blood examinations were frequently done, disclosing the fact that the leucocyte count was gradually increasing and on the 18th of December reached 13,200 white and 73 per cent Polys. A second Widal was negative as was also an examination for malaria. A blood culture was negative after five days.

The family physicians, Drs. Coon and Askenstedt, repeatedly went over the patient reporting chest, abdomen, etc., negative.

On December 22nd patient had a chill lasting twenty minutes with temperature jumping from 101 to 103.5 degrees F., and complained of pain in elbow joints. These were examined and found to be red, slightly swollen and quite painful upon movement. The following day same condition was present in left knee.

The next day, with a normal temperature at 1:30 A. M., had another chill and temperature went to 104 degrees F.

At this time it is needless to say that we were all convinced of our suspicion that an infected thrombus was present in the vein and a third operation was done on December 23rd. The vein was found to be pulseless, its walls looked darker than at previous operation. In the neck the jugular could be distinctly outlined and had a beaded feel. It was ligated by Dr. Coon and we slit the sinus from the knee to the bulb, getting free bleeding from below. The sinus was curetted above and clot removed, followed by free bleeding. A culture from the clot showed a gram positive cocci in chains. No sutures were placed in the wound, which was packed with 5 per cent iodoform gauze. Patient was rather uncomfortable for several days, but no chills were noted and profuse perspiration was not present. The temperature gradually assumed an even rate and the pump-handle variety disappeared.

On December 26th temperature did not go above 99.6 degrees and he spent a good day and night. This was the third day following the last operation. Temperature remained normal on the fourth day after operation. His condition gradually improved with no untoward symptoms presenting and patient was discharged from hospital on January 10, 1923.

In both cases criticism could be offered in that opening of the sinus was too long delayed. That may be true, but will not hold good from the standpoint of diagnosis, as this was made several days before the sinuses were opened in each case, but consent to operate could not be obtained sooner.

MILK INJECTIONS IN EYE INFECTIONS.*

By R. H. COWLEY, Berea.

For a good many years medical men have been experimenting with non-specific protein therapy. As much as 20 years ago some Spanish and French physicians began to use milk injections in eye infections. Numbers of cases were reported but the matter was not taken seriously by very many till in 1915 when on account of the war it was difficult to obtain sera and vaccines and Schmidt of Prague decided to experiment with milk and try to determine whether it had any therapeutic value.

As I understand it the idea originated in the fact that certain sera and vaccines had been found to give good results even when they were not specific. It was thought that the beneficial results often following the use of these protein substances were due, not so much to specific action, as to the reaction of the foreign protein on the blood or body tissues. If it could be shown that milk had such an action, we would have ready at hand a very cheap and convenient therapeutic agent.

Schmidt's results were so encouraging that other investigators took up the problem and, in the last few years, an enormous number of cases have been reported with the weight of evidence greatly in favor of milk, especially in certain eye diseases which formerly have been considered as the most intractable and discouraging of all human ailments.

J. M. Paton in the Iowa State Medical Journal in 1922 gives the results of a questionnaire sent to twenty prominent eye men in this country and Europe. He says, "To my surprise the treatment of gonorrheal conjunctivitis heads the list. Four reported favorable results, one negative, three cures and four failures in seven cases treated. Iritis and iridocyclitis were favorably reported in every case. Of nine corneal infections of various kinds reported all noted improvement except one. The simple ulcers seemed to respond more favorably than the very violent serpygenous type. Luetie, tubercular and trachomatous conditions were practically unaffected, though pain when present was usually promptly relieved. Six called attention to the value of this procedure as a preoperative and post traumatic prophylactic and single cases were given of marked improvement in orbital cellulitis, dacrocystitis and intraocular hemorrhage. Two spoke of prompt relief of synechia which had previously resisted the thorough use of atropin." All agreed that the treatment

should not superecede but rather supplement the older methods of treatment.

Dr. Carroll DeCourey of Cincinnati says in speaking of non-specific protein therapy, "By its use we have probably one of the best means of accelerating metabolic processes and increasing cellular activity. The use of this method has almost unlimited possibilities."

He gives a long list of cases treated with surprisingly and uniformly good results.

Barkan and Nelson presented a paper at the San Francisco meeting of the A. M. A., in 1923, in which they say "The literature is full of reports of good clinical results and from personal experience we can heartily indorse the use of milk in certain kinds of ocular diseases. There is no doubt of its value in iritis, iridocyclitis, gonorrheal conjunctivitis and as a prophylactic in infections of the eye ball following perforating injury."

My own experience with the treatment has been limited but in the few cases in which I have used it the results have been almost unbelievably prompt and thorough.

Although it is somewhat off the subject I might say that I used the treatment in a very violent case of facial erysipelas with a result that was strikingly effective. I have talked with a number of my friends who are eye specialists and all who have used the treatment are convinced of its value, though they do not understand why some cases are so promptly and completely cured, while others are not so favorably affected, or perhaps not helped at all.

I feel sure from all this evidence that the efficacy of milk injections in ocular therapeutics has been abundantly proven, not by any means as a cure-all but as a very definite help in a class of cases where help was sorely needed. In fact it seems to be the most refractory of all, gonorrheal conjunctivitis, that has shown the most brilliant results. Now we are loathe to take up any new method of any kind, especially a new method of treatment, until it has established its value beyond reasonable question. This is especially true of a method which does not lend itself readily to explanation and scientific proof. We are beset with all sorts of treatments backed by what appear to be convincing testimonials. So with milk injections. Thus far we have nothing but testimonials to justify its use. Testimonials from very reliable sources to be sure, but lacking either satisfactory explanation or scientific proof. One gives one explanation and another and another, but until we get reports from the large amount of experimental work which is being done on the subject we must admit that we do not know exactly what is the element in the milk to which the result is due.

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Barkan and Nelson in their paper say that as a result of their experiments they are of the opinion that the native milk proteins in themselves (in the amounts used clinically) are inactive. They have observed that as long as they use certified milk the injection is practically valueless. In other words "The milk reaction is not a milk reaction at all. It depends on milk bacteria and the product of their metabolism and not on the milk proteins." It is their opinion that if we wish to obtain reasonably certain results and if we insist on milk for the purposes of protein therapy we should use only milk with a high bacterial count. They propose in the future to use, if possible, a more suitable and convenient agent than milk to elicit their reactions.

At the San Francisco meeting another paper was read by Dr. Ben Witt Key in which he reported in detail the experimental study of 91 cases on which he used antidiphtheritic serum instead of milk. His experiments seem to have been done in a thoroughly scientific manner and with adequate controls. His conclusion is that the serum offers the best form of foreign protein for administration to the human. He seems to believe that it is the protein itself which causes the reaction and consequent healing although he admits the possibility of its being due to the products of bacterial activity. He is sure that he has proven conclusively the efficacy of the serum in combating pneumococci and staphylococci infections in the refraction media of the eye.

The Viennese workers early recognized the fact that when milk was used it was more effective in proportion as the bacterial count was increased, and many other reports go to confirm this view. If it be true, as seems to be the case, that certified milk with a low bacterial count produces little or no reaction on injection and has little or no therapeutic value, while dirty milk gives a greater reaction and better therapeutic results, then it seems to follow that the effect must be due, either to the bacteria themselves, or to the products of their metabolism in the milk. De-Courey uses milk in preference to other protein substances both because it seems to be relatively safer and because he thinks it advisable to use some one preparation so as to get acquainted with its action. In this way it is more possible to determine the results that are to be expected with a fair degree of accuracy. He sums up the immediate effects of the injections as follows. "The febrile reaction following a uniform dosage of 10 cc. of milk varies with the type of the disease. There was usually a rise in temperature within 10 to 12 hours, very often chills, headache and sweating, restlessness the first night, fever per-

sisting 24 to 48 hours. In acute febrile cases the temperature would rise, reaching the maximum in six to eight hours, but would recede to its former level in 24 hours.

"The pulse increased in ratio with the temperature. It has been noted that a rapid pulse in acute conditions is a contra-indication to this form of therapy. We only used injection in patients free from cardiac disease.

"Blood sugar was lowered in the majority of our arthritic cases, which suggested the effect on metabolic processes.

The blood pressure was not followed consistently enough to be of any value, although in several cases followed by chills and sweats the readings dropped from 10 to 15 mm.

It was noted that in the majority of cases the injections were followed by diuresis.

The leucocyte count was invariably raised. In some cases the injections were followed by a primary leucopenia, the leucocytosis following, consisting largely of polymorphonuclear neutrophils. The best clinical results were noted in patients that reacted with high leucocytosis.

The red count especially in anemic conditions was increased. The lymphagogue effect has been frequently noted and the euphoria that invariably follows has been attributed by many observers to this.

No albuminuria was noted following injection but it was observed that in two cases of arthritis complicated by albuminuria, following injections casts and albumin disappeared almost immediately from the urine.

It was observed that the weight of the arthritic cases increased during the period of treatment.

Menstrual flow in a number of cases was increased by the injections, suggesting endocrine stimulation.

The typical focal reaction following injections has been noted by us repeatedly, tonsils flared up, chronic gall bladder or appendix becoming tender, old inflammatory lesions in nose and eyes, male genitourinary tract and female adnexa becoming slightly active. The value of the reaction becomes apparent if the fundamental cause is in doubt. In two asthmatic cases definite foci were established in accessory sinuses which were not revealed by examination or X-ray.

Peterson calls attention to the two phases of the reaction, the negative phase in which the inflammation and symptoms are increased and the positive phase when there is a progressive diminution in the inflammation till the preinjection stage is reached and passed. The action seems to be similar to that of a real vaccine and not that of a serum so that we must recognize the possibility of doing harm in such cases as are already so profoundly intoxicated with the poison of the

disease that even a slight flareup might be fatal to the part. In other words where the eye is already dangerously inflamed we must, if we use milk at all, use it with great caution.

As to the method of administration there seems to be little choice between intraglottal and subcutaneous injection, some using one and some the other. The milk should be boiled about 15 minutes and injected with the ordinary hypodermic precautions.

I think I have said enough to introduce the subject. It is obviously impossible for me to offer anything original on such a subject. Only those doing actual experimental work can do this. However, I am convinced that whatever the explanation may be, we have in milk injections (dirty milk if you please) a remarkably effective therapeutic agent and I believe that as a result of the experimental work now going on we shall, before long, learn the specific element which produces the results and be able to use it more rationally than at present. It sure does seem ridiculous for a doctor in the present day of sterilizing and antiseptics to insist that the nurse who prepares his milk for injection shall choose, not certified or pasteurized milk, but the dirtiest milk obtainable.

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TRACHOMA.*

By L. P. MOLLOY, Paducah.

I have selected a disease known as Trachoma or Granulated Conjunctivitis, not that we have discovered anything new in regard to the pathology, symptomatology or treatment of this disease, for I assure you that I could write a better paper on what we do not know than on what we do know.

For instance, among the many causes put down that produce the disease we will sight two or three. It is said that people with lowered nutrition, serofnlosis and tuberculosis tendencies, people or children with enlarged lymphatic glands, poorly ventilated homes

and unhygienic surroundings are the classes of people that are more susceptible to this disease. Notwithstanding the fact that our best writers say, and which is a fact, that the negro race is apparently exempt from this disease, and if we accept this as a fact, we must eliminate all the above causes of Trachoma in America, for we do know that the colored race is the most poorly housed and unhygienic race we have in our nation.

Pathologists have not been able so far to throw any light on the causes of Trachoma. We are all agreed that it is a contagious disease and is transmitted from one party to another by getting secretion from the infected eye to the non-infected eye, and with the many ways by which this is transmitted you are all familiar.

This disease seems as old as the medical literature. In the days of Hippocrates we find that they were scraping the lids of Trachoma patients by the use of a wool mop. Granting the fact, the various improved methods we use in operation on the lids today, the principal remains the same. Our government places the strictest quarantine against Trachoma on all emigrants, and in so doing, has spent more money in fighting Trachoma than any other disease.

All our Public Health authorities are alive to the fact that Trachoma is a very dangerous eye disease and can be handled much easier in the earlier or incipient stages that after it becomes advanced and takes on the various complications or sequelae that follow this disease, and it is rarely ever until this stage of the disease that it becomes fatal so far as vision is concerned. The early diagnosis, proper advice, and treatment given your patient, more from a prophylactic standpoint. First, in the home, second, in the school and third, to the general public. Here is where we can do something.

I am here going to make a statement without fear of contradiction—"All Trachoma patients will first and last during life need the repeated attention of a good oculist." I do not mean that the Trachoma cases cannot be cured to the point of giving the patient a useful pair of eyes, but I do say that this same patient must have a Doctor's advice in regard to hygiene and working environments and bear in mind always, that this character of eye is more susceptible to other diseased conditions, and, therefore, demands much greater attention. Therefore, the best thing we can do for the public is to assist our Public Health sources in ferreting out these cases of Trachoma and demanding isolation until they can be properly treated so they can be admitted back to the schools and to the public with safety. I treated two cases of Trachoma about the year 1910-12, in different

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school districts in my home county, and I am sure that I am conservative in saying that since then I have treated twenty-five cases coming from these two districts and I have invariably traced the history of all these cases back to find that they were schoolmates, or in some other way very closely associated with the two original cases. I am treating at the present time one of these same cases of about twelve years standing who has come to me annually for the past five or six years immediately after firing his crop of tobacco with a relapse or acute exacerbation. Last year he had a corneal ulcer on the right eye near the center of the cornea. This year he comes to me with two marginal ulcers on left cornea. I merely mention this to show that this is the stage of the disease that we are anxious about. These are the cases we dread and we cannot promise our patient how much vision he is going to have following this corneal complication.

I do not believe if we follow our acute cases more closely and be more positive in our diagnosis and not dismiss them simply as acute conjunctival inflammation, when if we would follow the case up properly we would be able to make an accurate diagnosis, and if for no other reason, the isolation of this condition during the highly inflammatory stage it would be well worth the effort.

This disease is not very easily diagnosed either in the acute or chronic type and it is only by repeated and persistent examination of the patients at certain stages of this disease that we are able to arrive at an accurate diagnosis. We cannot afford to make the mistake in diagnosis on the patient having Trachoma. If we do so, we have cast a gloom over him that he cannot overcome, for he fully realizes if we tell him that he has Trachoma, that he has a disease that is hard to cure, and should we tell him that he has not Trachoma when he has, we have made a very grave mistake for his family, school and the public in general.

I believe if we will look more to the nose and throat as a causative factor in this disease, by finding diseased tonsils and adenoids, enlarged turbinates, deflected septums, polyp or any nasal obstruction that may interfere with the proper ventilation of the Sinuses. See that these conditions are corrected first, that a great per cent of our eye cases will take care of themselves. To say the least of it, it is this class of patients we come in contact with it more frequently.

The things that are to be done for this class of patients that might come under treatment are many. You are very familiar with them.

If we have any improvement on any surgi-

cal technic of Trachoma, I believe it comes in the form of surgery on the Tarsal Cartilage.

TONSILLECTOMY UNDER LOCAL ANESTHESIA.*

By OCTAVUS DULANEY, Louisville.

The accumulated experience of the medical profession on the subject of removal of tonsils for the past twenty years or more and with the history of various experiments and many different methods for their removal have been tried, yet the attitude of the physician concerning these methods form an interesting chapter in the history of applied medicine. To discuss them in detail in the present limitation is impossible. Summing up the situation in general we find that after years of varied experiments, the essential problem is no nearer a solution than it was in the beginning.

The time has passed when we required extensive statistics and demonstration of cases to be convinced of the benefit to be derived and the causes for removal of infected tonsils. That fact has definitely been established. It is hardly necessary to state that there are so few laryngologists who are using like methods or technique in doing tonsillectomies. Most all of us have peculiar or satisfactory technique for doing the operation, and as long as we are satisfied with our technique why should any one attempt to discourage certain methods on account of some "pet" hobby that is important only to the one who is using it in his individual practice.

It doesn't make any difference whether the tonsillectomy is done by blunt dissection, snare, Sluder or by the finger as long as the end results are the same, but there is one matter of special importance to the patient and that is the best anesthetic to be used in the individual case. Such determination is obviously of value, not only to the specialist but also to the general practitioner and family physician, who is usually the one to be consulted and who wishes to give intelligent advice in conformity to all the latest advances in our science.

Perhaps but few subjects in medicine have received more careful consideration and study than the tonsil. It is not my purpose to discuss the various infections and causes for the removal of the tonsils, but it is my intention to deal only with the local anesthetic, the best method of infiltration, and at the same time try to outline a simple method of operation for their removal under local anesthesia

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only. The best anesthetic to be used is still a debated question, and after all it seems to be a matter of custom, habit or locality which largely determines the most practical anesthetic which is favorable to the majority of the physicians in the community or city in which he is practicing. In many cities the majority of laryngologists operate practically all their patients over fourteen or fifteen years of age under local anesthesia, while others in a different location do their tonsilectomies under general anesthesia and are equally as successful.

Both general and local anesthetics always present certain danger. The majority of our text books are unquestionably in favor of the local anesthetic and—attempt to state that there is a lower mortality by its use, the essayist's personal experience does not exactly coincide with statistics on this subject.

From many years of experience and observation, I believe that a tonsilectomy can be done by an average operator successfully, regardless of many of the physical conditions that have been presented to us as being extra hazardous for a patient to be operated under general anesthesia, in the hands of a skilled anesthetist even the worst cases can be operated without much ill effect to the patient.

No doubt but what we are all of the same opinion that children under fourteen should be operated under general anesthesia. The adult is a subject for consideration, and it is for us to determine which is the most preferable anesthetic in their case.

It is my purpose, in presenting this paper, to get expression from others and to elicit a general discussion in order to become more familiar with the question of what class of patients should best be operated under local anesthesia.

For many years I operated every case, with but few exceptions, under ether. This practice had become a habit, when occasionally I was forced to operate a patient that had been advised by the internist to have their tonsils removed only under local anesthesia.

I must confess that I was not at all enthusiastic to do the operation. This lack of enthusiasm often prompted physicians to ask me why it was that so many specialists, especially the southern men, dislike to remove tonsils under local anesthesia. Unquestionably at the time, my answer should have been that I had done so few tonsilectomies under local anesthesia that this method was almost a "nightmare" to me. On account of this question being propounded to me so often and the unsatisfactory technique, and pain experienced from local anesthesia. I became much interested in the subject, and since doing so I am thoroughly convinced that the laryngolo-

gists should reach the point where he should not have preference, but do the operation most suitable to the mind of the patient when their physical condition will permit.

For the past year I have done nearly two hundred tonsilectomies under local anesthesia by infiltration, using one per cent novocaine and adrenalin. Practically all of these cases were operated under the same technique. A preliminary dose of morphine, one-sixth of a grain, given thirty minutes before the operation will lessen the pain very materially, quiets the patient and possibly in this manner helps to control the bleeding. Another thing to remember that your best results are obtained by waiting fifteen minutes after the injection is made as it requires this length of time to get the full anesthetic effect of novocaine.

Local anesthesia by infiltration has rendered a tremendous service, not only to the specialist but also to general surgery. In its use the mental attitude of the patient is very important.

It is an easy matter to operate children under a local anesthesia, if you are successful in convincing them that it is the best method, one should be very careful to try to explain the reason why a local anesthetic is more preferable. I have done tonsilectomies on a few children under twelve years of age and was astounded at my success. I was able to get them to co-operate with me to the fullest extent in every step of the operation. One of these children was suffering from chorea, extremely nervous, present endocarditis, she was convinced that it was best to operate her without a general anesthetic on account of her heart, she readily consented and no difficulty arose during the operation.

My observation has been that the younger the individual, the more complete is our anesthesia with novocaine and adrenalin, I am sure they do not suffer as much pain after the operation from the infiltration, this is evidently due to the elasticity of the tissue. The operation is almost a bloodless one. Considering the child in the connection of the removal of tonsils and adenoids under a local anesthesia, I want to mention it again to emphasize that I do not believe that this should be attempted unless the child's physical condition is such that it would be dangerous to operate otherwise.

With the adult, I think that the matter of general or local anesthetic, should be left largely to the patient, under ordinary circumstances, as some have a horror of a general anesthetic; others would have the same horror in submitting to a tonsilectomy under local anesthetic. They often state to you that they

do not want to know anything about the operation, while others ignore advice, and have gone for many years fearing to have their tonsils removed under a general anesthetic.

To obtain the best results, we must consider the patient's feeling in this important part of the operation if we expect to get their co-operation, which is essential to good surgery. It is hardly necessary to take up in a general way the physical conditions that may require a tonsillectomy under local anesthesia, but briefly, certain kidney, heart and respiratory disorders form the principal contra-indication for general anesthetic. The mental attitude of the patient should not be overlooked in this connection.

If the patient states their preference, you can certainly expect their co-operation, and they will put up with some of the discomforts in whatever method you may select. As a rule it is not bad to follow the suggestion of the patient on this point. We are fortunate to have the majority of our patients readily to consent to whatever we think best for them.

There are advantages and disadvantages of both local and general anesthetics. There may be slight nausea or no nausea at all in practically all patients operated under local anesthesia. In using morphine as a preliminary this should never be given but thirty minutes prior to the operation, as sometimes some nausea will be noted if you wait an hour after the administration of morphine before beginning your operation. Pain following the operation is less when it is administered thirty minutes prior to time of operation.

One of the principal dangers of a local anesthetic in tonsillectomies are abscesses, which sometime result from the injection. In severe infections of the mouth, teeth, tonsils, one should hesitate to operate under local anesthesia as the infectious organisms are easily carried by the needle into the deeper tissue, and thereby causing severe after trouble. This condition is rare, but one for serious consideration.

Syncope has been noted in a few patients following the injection of adrenalin, but as for novocaine I have never noticed any toxic effects produced from anesthetic. I always try to keep the patient in a semi-reclining position during the operation as this seems to lessen the danger of syncope or fainting.

As preliminary, all adults are given morphine, grain one-sixth, thirty minutes prior to the operation. From six to eight drams of one half to one per cent solution of novocaine, containing one minim of adrenalin chlorid to the dram, is used for injection. Only two points for each tonsil are necessary to produce satisfactory anesthesia. Two drams are injected at each point. Both of these are ex-

ternal to the anterior pillar. The first is made external to the anterior pillar in the areolar tissue on a line with the junction of the lower and middle third of the tonsil. The other is made external to the anterior pillar on a line with the junction of the upper middle third of the tonsil.

For the lower injection you should keep well under the angle of the jaw, using the eminence as a land mark inserting the needle, going backward and outward at an angle from twenty-five to thirty degrees. Both injections should be made with the needle inserted five-eighths of an inch in depth.

I want to emphasize that swabbing with cocaine prior to the injection is entirely unnecessary, as it adds to the danger of the operation on account of its toxicity. Neither is it necessary to inject any of the solution in the posterior pillar, as this helps to distort the tonsil and has but little effect on the anesthesia.

DISCUSSION.

The nerve supply of the tonsils are well blocked by injecting external to the anterior pillar into the soft areolar tissue, as the nerves and blood vessels are found adjacent to this tissue on the pharyngeal muscles. I believe that the glossopharyngeal nerve supply to tonsils has been underestimated, for I find that the blocking in this region adds very much to the success of a painless operation, also in controlling the hemorrhage.

The writer is thoroughly convinced that the shock of the operation is reduced to the minimum. The average adult is ready to return to their usual occupation much earlier and there is a decided difference in the general appearance of the patient under general anesthesia. Personally I prefer the Sluder method for both local and general tonsillectomies, much time is saved and but few instruments are required to operate under this method.

CONCERNING CERTAIN CONTRAINDICATIONS FOR OPERATION OF SENILE CATARACTS, WITH THE REPORT OF A FATALITY.*

By F. PHINIZY CALHOUN, Atlanta.

The tragic ending of an important cataract case, whose interesting history I herewith report, has prompted me to collect, as I view them, certain contraindications for operation of senile cataract, excluding ocular conditions.

HISTORY.

A gentlewoman age 78, consulted me on account of a sudden loss of vision in the left eye of two days' duration. The vision in the right eye had been impaired for two years by

*Read before the Eye, Ear, Nose, and Throat section of the Kentucky State Medical Association, Louisville, September 22-25, 1924.

a slowly growing cataract.

There was nothing important in the family or past history of the patient. Her general health had been good for one her age, and her time had been pleasantly spent attending to her household and religious duties. The patient was fairly well nourished and weighed about 130 pounds. She was usually of a cheerful disposition and while naturally disturbed about the loss of her sight, she was perfectly calm.

The right eye had vision of hand movements at two feet. The appearance, tension and motility of the globe was normal. The light projection was excellent. The lens contained a large opaque nucleus, with some spoke shaped cortical changes. The periphery of the fundus could be seen through the widely dilated pupil, and nothing abnormal was noted, except a mild hyalitis.

The left eye had vision of 3-200. The appearance, tension and motility was likewise normal. There was a small nuclear cataract with a few peripheral striations. The fundus showed a typical picture of thrombosis of the central retinal vein, however, not of a severe degree.

She was candidly told the condition of her eyes, and privately the family was informed of the possibility of more serious complications (glaucoma) which might develop in the left eye, and of the very unfavorable prognosis.

While no very exhaustive effort was made to find a cause for this vascular affection other than by a general physical examination, (the urinalysis revealing only an occasional hyaline cast and a few pus cells, and the blood pressure was 136 S), it was concluded that a general arterio sclerosis was the probable cause, in which her family physician concurred.

The condition of the left eye was treated with hot applications, and the syrup of hydriodic acid was ordered internally. After three months the hemorrhages had absorbed to some extent, leaving large whitish areas, yet the vision had not improved. The tension remained normal.

She was now fretting over her long blindness and begged that something be done to improve her sight in the right eye. It was finally agreed to extract the lens by a two step operation and accordingly a preliminary iridectomy was performed without complication. Through the coloboma a better view of the fundus was obtained and I could readily trace the peripheral vessels which appeared normal. I felt justified in advising and completing the second stage (the extraction) which was performed six weeks later.

The operation was performed without incident. A large lens slipped cleanly out of its

capsule leaving a black pupil. We all felt encouraged.

The following morning, 16 hours after the operation, the nurse noticed fresh blood on the bandage and notified the resident. There had been some nausea during the early part of the morning, which later in the day increased in severity and was followed by vomiting. On dressing the eye I found a large clot protruding from the lips of the wound. Under the circumstances I concluded that it was best to bandage and wait for developments. The patient at once suspected some serious accident, and while composed there were evidences of anxiety, which continued throughout the illness.

Fifty-six hours after the operation I was called to see her on account of a numbness in the right hand and because the nurse could not detect a radial pulse. A definite occlusion of the right brachial artery in the middle third was established which was thought to have been a thrombosis. While there was pain in this extremity for a few days, a collateral circulation was established and function restored.

In the meantime the eye remained quiet and the major portion of the clot became detached. One could readily detect a change for the worse in the patient's daily condition. She had horrible nights, dreaming, fighting and tossing, yet when aroused she would be perfectly calm. An occlusion of the arterial cerebral artery was suspected. The pulse had become irregular and the output of urine was now under normal and contained a few hyaline casts.

Ten days after operation she complained of a cramping sensation in the calf of the right leg and pain in the toes. The extremity became cold and no pulsation could be detected in the popliteal artery. Here also a thrombus (?) had developed. Gangrene of the foot set in and fifteen days later death was a welcomed termination.

COMMENT.

The many complications and the fatal termination of this case justifies the question, Was poor surgical judgment displayed in operating upon this type of patient? The reader is asked to decide the question, as if he had assumed responsibility of the case. The cause of the complications may be explained by the histo-pathology of senile arterio sclerosis, that is the dislodgment of rough calcareous plates with which the intima is lined and the deposit of white thrombi, all of which may have been a vaso-motor disturbance induced by the shock of the operation, the anxiety of an unfavorable outcome and possibly some acute toxemia evidenced by nausea. This vessel occlusion may

likewise have been caused from a dislodgment of these plates from within the left ventricle producing an embolism. But in as much as certain veins were affected, the former opinion is most likely.

In this discussion pathological changes in or about the eye, other than when they give information of a general character, acute infectious diseases or acute exacerbations of chronic conditions, anaemias from cachexias and cases of impending death are naturally excluded.

Senile cataracts occur in subjects at about a time when degenerations or alterations naturally take place in vessels, organs and tissues of the body, and while ordinarily these changes are no bar to an operation on the eye, a general physical examination and history taking often gives much valuable information as to the condition, behavior, the diet and other regulations of the patient. We are often content with the eye examination and the general "sizing up" of the patient without further knowledge of the patient's health and habits. That this is true is borne out in the discussion of Bernstein's paper on "Deaths following Cataract Extractions," (*A. A. of Oph. & O.* 1915), where ophthalmologists of undoubted skill as operators and clinicians admit the lack or incompleteness of careful physical examination prior to operations. I believe that it is not amiss here to stress the need and importance of preliminary medical examinations to determine the fitness or risk of the subject for operation. Old age is not a bar to a cataract operation, provided the patient's mind and body are in a moderate degree of preservation. Many successful cataract operations have been reported in patients over 90 years of age.

Deaths immediately following cataract extractions are occasionally recorded. It is often thought to be a coincidence, but in some instances the operation may indirectly be the cause.

Degenerative changes of the cardio-renal-vascular system, particularly demand our attention as being the most important index of the physical condition of the senile patient.

Most hearts organically affected, having weathered the storms of 50 or 60 years, should endure the slight shock and strain of a cataract operation. Nervousness due to fright or dread of the operation I rarely find, for these patients generally look forward with great cheerfulness to the day of restored vision, and it is only the very ignorant and suspicious foreigner or negro who cause trouble. I have found that a stay of a day or so in the ward with other cataract cases from whom they learn their experience, usually allays this timidity. I have never found it necessary to

give sedatives or hypnotics before operation, and morphine I have always thought contraindicated.

True angina pectoris with definite cardiovascular changes, with which it is usually associated, may be justly considered an operative risk of the first magnitude. I am confident that I have had such a fatal complication. Yet the surgeon may be justifiable in advising the operation after explaining the possibilities to the family.

A renal disturbance of the sclerotic type, is to be expected in the senile and unless there are definite evidences of impending impaired function, we may with impunity consider this no bar to a cataract operation. A trace of albumen and a few hyaline casts in the urine of a patient over 60 years of age may have been present for years, and would have no influence upon a favorable outcome.

Extreme hyperarterial tension is considered by many a direct contraindication for operation, on account of the disaster of subchoroidal hemorrhage. This complication might likewise occur in normal or subnormal tension with atheroma. I have never regarded hyperarterial tension as a contraindication to an operation; except as a symptom complex in severe cases of cardio-renal disease which in itself is a contraindication.

I have estimated the systolic blood pressure of 30 cataract cases in the office, again in bed prior to the operation and during the operation. My readings showed little elevation except in three cases, according to the attached table and in none of these was there any accident or complication that could be attributed to the hypertension. (See table).

With any of these conditions enumerated should there exist severe fundus changes of a vascular type, such as arterial or venous hemorrhages I would feel very apprehensive of the ultimate outcome until the patient was out of the hospital.

I believe the present generally accepted opinion of most ophthalmic surgeons in regard to the extraction of senile cataracts in diabetics, is that while the healing is not always as smooth and free of complications (iritis) as in other types of senile cataracts, yet the prognosis is nearly as good as that of ordinary cataracts and on the whole they do well when reasonable precautions are taken. I have always had the notion that some of the fear and timidity of the present day surgeon in regard to cataract operations in diabetics has been handed down to us from generations past, when there was less attention to asepsis and the general preparation of the patient before operation.

I believe that diabetics from the point of view of the eye surgeon may be classified into

(1) diabetes complicated with renal disease, (2) diabetes with general symptoms and (3) diabetes with glycosuria as the only symptom, and that the success of a cataract operation depends much upon the selection of the type of diabetic patient. A patient of the first class, or one having definite sign or symptoms (of diabetes,) such as loss of weight, polyuria and polydipsia, would hardly fare as well as the diabetic with glycosuria as the only sign.

Clegg's experience rather substantiates this statement. In a series of 87 extractions on senile diabetics, eight cases showed definite signs of diabetes other than glycosuria. Of these eight cases there were three uneventful recoveries, and two died in coma from three to four days after operation. Iritis developed in twenty-six of the 87 cases, but the visual results in 23 of the 87 cases, compared favorably with other extractions.

While Unthoff has reported 115 extractions in diabetics without failure, this remarkable experience is probably due to the carefully selection of cases, as one would expect from so careful a clinician.

Occasionally one hears of a diabetic patient entering the hospital and without warning goes into coma the following day, caused no doubt from a sudden change in diet and a difference in surroundings. It has been suggested that with cataract cases, the operation be delayed a few days, during which period the accustomed home diet be given, and that such catastrophies can be averted.

In the preparation of the patient, it is superfluous to add that the sugar in the urine must be reduced to a minimum and the general health of the patient improved. "These dietary measures and alimentary rest not only results in sugar free patients, but beneficial alteration in the chemistry of the body which the patient should enjoy at least two weeks before operation," (Leyton).

But even with a small percentage of sugar, the operation may be undertaken with a minimum risk, provided there is not present acetone or especially diacetic acid, which if found, is always a warning of an impending acidosis or coma.

The estimation of blood sugar in diabetes has to some extent modified our former ideas concerning the patient's condition. In an absence of glycosuria, an abnormality high glycemia (240 MG to 100 C. C. blood) may exist and the patient, according to many internists, would not be a good surgical risk, particularly true when a renal complication is present. I am reliably informed by a trustworthy worker in diabetes, that insulin need not be given as a preliminary treatment in operations of selection on senile diabetics,

except of course in cases of great urgency as when the patient is in coma or in an attack of acidosis. The too rapid change in the body fluids from the administration of insulin forms chemical alterations which as yet are not too well understood, and which perhaps do not serve the body as well in the attempt to reduce sugar and improve the general health, as by the more modern dietary measures. This particular phase of the preparation of the senile diabetic for cataract operation is so new, that I know of no ophthalmic surgeon who has had the great experience to speak with authority, and my views expressed with some reluctance may be subject to considerable change.

Of pulmonary conditions there is little to suggest. The surgeon should have cognizance of an existing bronchiectasis, asthma and chronic bronchitis before operation and unless the distress and cough attending such affections can be well controlled by appropriate therapeutic measures at a trial before the operation, they may readily be considered poor risks, if not subjects inviting disaster. I have operated successfully upon a patient who had epilepsy and asthma, who was appropriately treated prior to operation and during the convalescence.

It is now almost the universal practice of most surgeons to get cataract patients up in bed and out of bed within as short a time as possible, compatible with safety to the eye. This practice has prevented the pneumonias of the hypo-static type, which, a generation ago, were more frequent. With a well directed conjunctival flap or a corneal suture the patient may be allowed reasonable freedom after twenty-four hours.

There is strong clinical evidence that focal infections play a part in the causation of certain post operative eye complications. But in as much as infections of the teeth and tonsils are comparatively frequent, my views concerning their correction as a preliminary operation to a cataract extraction are most conservative. In the aged, a tonsillectomy (under ether) and the extraction of many teeth, might prove to be an operation of great magnitude, as has been my experience. For the eye surgeon to refuse to operate solely on account of the presence of infected teeth or tonsils, in my estimation would be going to the extreme. The gums and intestinal tract should be cleansed upon general hygiene principles, with little annoyance and much comfort to the patient.

The eye surgeon would be taking a great chance to operate in the presence of a purulent sinusitis, unless the avenue of contamination to the lids (through the lachrymal duct) could be occluded.

Lunacy is generally recognized as one of the few definite contraindications to cataract operations. During lucid intervals, or with certain types of psychoses one may successfully operate and thereby permanently improve the impaired mental state. Such is not usually the case, for as a rule the eye is lost from accident, the insanity becomes permanent and death often ensues. Harrison Butler's unusual experience more than substantiates this gloomy view. Less bandaging and the greatest freedom to these mentally defectives, I believe are recognized as necessary adjuncts to the success of the operation. Cataract patients who display unusual manners suggestive of insanity, or have strong hereditary traits which are easily discovered, are cases which should be accepted with great reservation.

Undoubtedly haemophilia, where the blood clotting time cannot be brought to normal by appropriate therapeutic measures, is a condition which is almost sure to invite serious complication. Fortunately the contraindication is rare and I have never seen or heard of a case.

I am aware that there are no hard and fast rules which can be applied to all cataract cases, and I believe that a charitable view would be that whenever there is doubt as to a contraindication for operation, the patient should be given the benefit. Most surgeons have successfully operated upon cataracts and later discovered by fundus examinations definite evidences of vascular or metabolic disease. That this occurs does not alter my belief that preliminary physical examinations should be made, for a catastrophe may often be averted by knowledge previously gained. Six Point to Come.

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JUST AMONG FRIENDS, SUGGESTIONS ON THREATENED DANGERS.*

By J. A. STUCKY, Lexington.

A few days ago a general practitioner, who is doing splendid work in an adjoining county, came to my office with his wife, both suffering from trouble involving their nasal accessory sinuses, and after I had relieved both of them, the husband turned to me and said, "Why don't you write something on medical ethics, or something that the general practitioner out in the hills can handle to a better advantage than he can diseases of the eye, ear, nose and throat?" Apropos to my reply to his questions, I submit the following short

editorial from the April issue of the Medical World. (Phil.):

"General practice is the biggest specialty in medicine. Few patients should be treated without first having passed through the hands of the general practitioner. The general practitioner is not passing; he is coming back into his own. He is to be the man who will direct all the patients and choose the proper specialist. But there are some things the general man must do. He must work as hard and painstakingly at his specialty as the specialists do. He must perfect his records and extend and complete them. He must perfect and employ the psychology of the specialist in handling patients and in making the case appreciate the service and pay for it. Not only this, but the general man must develop his own psychology and independence, and take away from the surgeon and specialist this condescension they have in 'accepting a case the general practitioner cannot handle.'"

And inasmuch as the general doctor is the hub of the medical universe, the rest of the wheel, the specialties, the spokes must be returned to the hub after being repaired, (by the surgeon and specialists) and the fellow placed back "in the original position," as you were."

Having done active practice in general medicine and surgery for fifteen years before taking up my specialty, I emphasize very heartily what is said in this article. Every day I appreciate more and more the value of the knowledge of general medicine and surgery.

Two dangers confront the medical profession. (1) the danger of becoming ultra-scientific, (2) the danger of becoming scientifically myopic.

Every man entering the profession of medicine owes a very solemn duty to his patient, the public, his profession, and himself. This duty cannot be discharged in any other way than to "deliver the goods," in every case, at all times, under all circumstances, and to do that, unshakable honesty, thorough preparation, careful examination, thoughtful consideration of evidence and mature decision are all necessary.

"Clinical medicine is an art, as well as a science, and in the sick room many qualities are called for which are not essential in the laboratory. A man who is deeply imbued with the spirit of science may prove a poor practitioner, whereas another, rich in common sense, sound judgment, experience and human sympathy, but to whom abstract science makes little appeal, make a very good one. Tact and equanimity, courage and restraint, patience with fads and sympathy with grief, diagnostic skill and manual dexterity or qualities called

1. Abstract of address delivered at Get-To-Gether-Meeting Fayette County Medical Society, Lexington, Ky., March 10, 1925.

for in the daily work of the practitioner of medicine and surgery. Medicine embraces a number of constituent sciences and for the attainment of her beneficent aims all her branches need to work together in mutual respect, amity and concord."

The danger of the ultra scientific practitioner is that he is apt to look too much at the disease and too little at the patient, or to forget how greatly the former is shaped by the reactions and idiosyncrasies of the latter—on the other hand the scientifically myopic practitioner sees only that part of the body in which he is interested. The hope and inspiration of the medical man is in and through their attendance and work in Medical Societies. To stand still is to stagnate, and to stagnate is to wither and die. "Our County Medical Society is a real trust of which we are a component part. Absence is a dereliction of duty. One who fails to rise to the emergency is apathetic, and we are cheating ourselves if we let the other fellow do it."

The business man seeks to make money—the laboring man to make a living—the medical man seeks to make life efficient. From the ethical and ideal viewpoint this is the world in which the practitioner of medicine lives, but of whose inner tragedy he is not really a part. His greatest suffering and sorrow is not from reverses in finance, or from want of something to do, resulting in suffering of self and family, but his greatest suffering and sorrow comes because after having done his best with his skill and science, he fails and the grim reaper wins. While our philosophy, "that death is as natural as life and just as good," is true, yet it falls with a dull rasping thud on the broken heart.

I did not ask this big, warm hearted, hard working country doctor, why he suggested that I write something on Medical Ethics—for he had just said, "I have been studying the Ten Commandments of Medical Ethics—written by the late Dr. Frank Wynn, which hangs in the reception room of your office," but I was a bit surprised when he told me that he knew practitioners both in the city and country who disregarded the code of ethics, some through ignorance, others through avarice.

There is a black sheep in nearly every profession, but they are so few, and for this reason so conspicuous, that the white ones, (the ethical) stand out in bold relief, appearing all the bigger, better and whiter. Occasionally one does commercialize his profession but this is soon found out and the guilty is ostracised by both his profession and the public. It is as damnable to commercialize our profession as it would be to commercialize the Gospel of the Man of Galilee. The founda-

tion and corner stone of the Code of Medical Ethics is the Golden Rule, which is not a law but a principle based on man's humanity to man.

The time was, when it was a just indictment—that we treated our knowledge and science as if it belonged to us personally and would be lost if shared by others—but that is not true today, for we daily teach, in our visitations in public and private conversations, the cause of disease and its prevention, emphasizing that knowledge is virtue, freedom and power, but wisdom consists in sharing the knowledge that will render power, freedom and knowledge common property, and make ethical all life. This is the larger service of the medical man. We do not harbor resentment, envy and jealousy, nor conceal our knowledge beneath technicalities as much as we did a quarter of a century ago. As medical men we have the best psychological approach to the individual and the masses and we must share with other educators the joyous burden of teaching the people a new, safer and safer way of living. We are examining our patients more carefully and systematically and increasingly appreciate the value and psychology of carefully made records of each case.

Our relation to our patients is a personal one, there is no third person in it, for we come in direct contact with him. Our records must be accurate for so often memory is treacherous. The trouble with us is, we do not so much lack knowledge as we lack the democratic spirit that sees in every man a stimulus to share the best we have. Our part is to be producers, not barnacles and to "make the world safe for Democracy" by disseminating our knowledge.

POLIOMYELITIS ASSOCIATED WITH HYSTERICAL MANIFESTATIONS: CASE REPORT.*

By JOHN J. MOREN, Louisville.

The following case is one of the most interesting that I have seen for a long time. The patient is a girl ten years of age, the second of four children, the parents and the other children being in perfect health. This child is mentally very bright, studious, has a splendid record in school, and has never been sick.

October 9, 10, and 11, 1924, she had an attack of diarrhea. She did not appear to suffer especially and a doctor was not called. The mother administered home remedies, and says she noticed nothing wrong with the child except the diarrhea.

October 13 a physician was called, when, the mother states, the child seemed to be "out of her head;" she quoted one poem after

*Clinical report before the Louisville Medico-Chirurgical Society.

another, she worked problems in arithmetic, repeated the multiplication table, recited her lessons, etc. This persisted until October 18, then she began to act foolish, talk silly, tried to imitate actors, such as the Hunchback which she had seen in a picture show. Shortly afterward she began to fight and bite her mother, bite herself, and act in a very peculiar manner.

October 19 the mother brought the child to my office. She was taking two kinds of medicine prescribed by the doctor to keep her quiet. At that time she could neither stand nor walk. Mentally she appeared very bright. There was no elevation of temperature, no increase in pulse rate, no difficulty in talking; she looked the typical picture of a healthy country girl.

They arrived at my office a few minutes before I had to leave and the child was hurriedly examined. All her reflexes were present and normal except the knee jerk and tendo achilles on the left side which could not be obtained. The plantar reflex was normal on both sides. By supporting her she was asked to stand on one foot and then on the other, and this test showed a marked weakness of the anterior group of muscles of the left leg. No sensory disturbance was noted.

The mother was told to return to the hotel and keep the child at rest and report to the office the next morning. Fortunately the girl was able to sleep very well that night, with practically no excitement, and she made no further attempt to fight or bite her mother.

The following day she was feeling better generally, she was mentally bright, but the two reflexes mentioned were still absent. I had prescribed urotropin in three grain doses to be taken four times daily. The mother was instructed to continue this and to keep the child quiet.

I saw the child October 21, at the hotel, at which time I could obtain a slight reflex of the left knee and tendo achilles. She was decidedly better and could walk about the room in comparative comfort. Rest and urotropin continued.

When the child was brought to my office the following morning, the knee jerk and tendon reflexes of the left side were present although not as active as on the right side. She could walk perfectly well, and the mother left with her for home in eastern Kentucky that night.

The questions arise: Did this child have a so-called abortive or mild attack of poliomyelitis? Did the constitutional effect of toxemia produce the mental condition present?

Did the picture of the Hunchback, which had particularly impressed her have anything to do with production of the mental symptoms?

If the child had poliomyelitis, it is the most rapid recovery that I have ever seen. I believe the diagnosis of mild poliomyelitis is correct. I cannot believe loss of the reflexes on the left side was dependent upon any sedative drugs prescribed by the physician. More over, if due to that cause why were not the reflexes of the opposite side similarly affected? The child probably had a mild case of poliomyelitis, or some infection associated with the attack of diarrhea, that produced slight edema—not destruction—of the spinal cord just sufficient to cause loss of the reflexes on the left side. There may be an hysterical element in the case, but I do not believe all the manifestations were due to hysteria.

The mother was instructed to keep the child at rest for a week or ten days longer at least, before allowing her to exercise very much, in order to be on the safe side.

DISCUSSION

Ben Carlos Frazier, Louisville: I have seen quite a number of patients with acute poliomyelitis, but have never observed one who had delirium or marked nervous manifestations.

I reported a somewhat similar case before this society several years ago. The patient was a girl aged thirteen, and the family physician had made the diagnosis of hysteria because she refused to move her arms or legs and insisted upon remaining in bed. When I saw the patient I at once recognized that she had acute so-called infantile paralysis. This girl had arrived at the age when her menstrual periods should begin, and the doctor regarded her symptoms as hysterical. The late Dr. A. M. Vance, Dr. J. B. Marvin and several other Louisville physicians saw the patient and agreed in the diagnosis of poliomyelitis. The girl recovered and is well except for deformity. She is now between thirty and thirty-five years of age.

In the case reported if the child had poliomyelitis recovery was too rapid to have been produced by urotropin, even though it may in a measure be regarded as a specific remedy acting through the spinal cord. I believe it is one of those rare cases sometimes seen in which we cannot definitely explain the cause of the symptoms. From the history, however, it appears to me more like a case of hysteria than anything else. We know that children are not exempt from hysterical attacks.

J. Rowan Morrison, Louisville: Dr. Moren has reported a very interesting case. The history, together with the age and type of the child are suggestive of hysteria, and this may be the correct explanation of the symptoms. On the other hand, the Hunchback picture may have made such

a profound mental impression on the child as to cause a state of exhaustion. Still, that would hardly explain absence of the reflexes.

I have recently read some literature on the so-called "Devil's Grip," which is in reality an epidemic plenrodynia. In some of the cases it was reported that absence of the knee jerk and tendo achilles reflex persisted for several days and then returned to normal. The cause of the disease is supposed to be a mild toxemia, the manifestations of which appear and disappear at intervals.

In Dr. Moren's case there may have been a mild toxemia associated with hysteria. It seems rather strange that, if it was even a very mild form of poliomyelitis, recovery should have been so rapid.

John J. Moren, (In closing): Whether this child had any temperature elevation before she was brought to Louisville I do not know, but when I first saw her the temperature was normal. She may be an hysterical subject and possibly some of the symptoms may be explained upon that basis, but I do not believe hysteria will account for loss of the reflexes. There must have been something else, whether it was toxemia or poliomyelitis is a little uncertain.

Some cases of poliomyelitis improve very quickly, and many patients with epidemic poliomyelitis have completely recovered. We have never seen a real epidemic of poliomyelitis in this community. In the sporadic cases seen here there is usually more or less permanent paralysis.

In the case reported loss of the reflexes must have been due to some cause other than hysteria. So far as I am aware there is only one reflex which is lost in hysteria, and that is the corneal reflex which is a pain reflex. Hysterical, anesthesia is analgesia, and in such cases there may be loss of the corneal reflex, but on the same side the nasal reflex can always be obtained.

THE PUPILS IN DIAGNOSIS.*

By ADOLPH PFINGST, Louisville.

While pathological changes within the eye balls and involvement of the extrinsic ocular muscles frequently lead to an early diagnosis of some constitutional diseases or intracranial disturbances, a study of the pupillary phenomena is of equal or perhaps of greater importance in considering the eyes in diagnosis. The study of the pupils—as regards their size, shape, equality and various reaction—should be of interest to the surgeon, neurologist, internist and oculist.

The pupils are subject to fluctuation in size, depending upon the activity of the sphincter or contractor and the radiating or dilator muscles which control the pupillary

aperture and upon the influence of the nervous elements over these muscles. It would seem justifiable, before discussing the modifications of pupillary size and reaction in disease, to review anatomical facts and physiological processes as they prevail in health.

Before pupillary reaction can satisfactorily be studied it is essential that the absolute as well as the relative size of the two pupils be determined. For practical purposes estimation of their size by ordinary inspection will suffice, although for scientific study a more accurate estimate of the pupillary openings may be made with a pupillometer. The simplest of these is a circular disc with various sized circular perforations. The disc is held close to the eye and rotated until that circle which matches the pupil is reached.

Slight variations in the size of the pupils have little significance as this varies physiologically in the same individual and in different individuals and with conditions under which the eyes are examined. The average diameter of the pupils in daylight varies from 2 1-2 to 5 1-2 mm. In very young children and in the aged they are quite narrow, while young adult life represents the age at which the pupils reach their greatest size. In eyes with myopic refraction the pupils are uniformly wider than in hyperopic eyes. Strangely the pupils contract during sleep—notwithstanding the exclusion of light. This has been ascribed to a relaxation of the dilator muscle from lack of sensory impressions. The pupils of the same individual are nearly always of equal size, although a slight relative difference has frequently been observed as a congenital condition (anisocoria). While this has no significance a pronounced difference in size must be regarded as pathological.

The pupils are nearly always round, although infrequently they are somewhat oval in shape. This slight deviation from the usual shape has no significance just as the occasional eccentric pupil has none.

Variation in the size of the pupillary aperture is under the control of the nervous system, the constrictor influence reaching the circular or constrictor fibres of the iris through the third (motor oculi) nerve by way of the ciliary ganglion and the short ciliary nerves; and the dilator influence, reaching the radiating or dilating fibres through the sympathetic via the truncus cervicalis. Pupillary contraction is a reflex act in which the primary influence is conveyed over the efferent arm of reflex are represented by the optic nerve. It carries the impulses from the retina to the pupillary center in the quadrigeminate bodies, hence the innervation of the constrictors is

*Read before the Louisville Medico-Chirurgical Society.

under the control of bilateral pupillo-motor centers located in the lateral wall of the aqueduct of Sylvius. Just as the optic nerve terminates in the primary optic center in the anterior-quadrigenate body, external gemiculate body and posterior end of the thalamus from where it is to be relayed to the cerebral cortex by way of the optic radiation, most of the pupillo-motor afferent fibres leave the trunk of the nerve and pass through the anterior quadrigenate body to terminate in the pupillo-motor centre in the aqueduct of Sylvius, close to the centers of accommodation and adduction.

The fibres from all three of these centers reach the eye ball through the motor oculi nerve (third nerve). The rest of the afferent pupillo-motor fibres terminate with the optic nerve in the primary optic ganglion.

It is a common observation that the rapid contraction of the pupils which follows their sudden exposure to light is soon followed by moderate dilation, even though the light exposure be continued. This adaptation of the retina must be taken in consideration in testing the light reflex.

In making the light reflex test for one pupil practically the same amount of contraction of the fellow pupil takes place, even though that pupil be shaded. This phenomenon is known as the indirect or consensual light reflex and can be explained in the partial decussation of the pupillo-motor afferent fibres at the chiasm. Like the visual fibres of the optic nerve some of the pupillo-motor fibres go to the center on the same side while others cross to the center of the opposite side.

In addition to the response of the pupils to light pupillary contraction is also brought about by convergence of the eyes and accommodation. This is not a reflex action but is explained in the proximity of the supposed centres for convergence and accommodation to the pupillary constrictor centre. Whether this associated reaction of the pupils is the result of the accommodative effort or of convergence is a mooted question, though most physiologists agree that either act alone can bring about pupillary contraction, but more especially the act of convergence. The contraction exceeds that resulting from light reflex as is evidenced by a further contraction of the pupils when converging or accommodating after a maximum response to light has taken place.

Pupillary dilatation frequently results from sensory impressions (sensory reflex). The dilation of the pupils observed during severe pain or as the result of irritation of the sympathetic nerves of the neck are instances of this kind. It may also result from fright and other psychic impressions (psychic re-

flex.) The cervical sympathetic nerves which innervate the dilator muscle fibres arise from centres in the anterior horns of the spinal cord on a level with the last cervical and upper three dorsal nerve roots. They reach the eye ball through the Gasserian ganglion, nasal branch of the ophthalmic division, and the long ciliary nerves. When stimulated they cause contraction of the dilator muscles and bring about a wide pupil. Relaxation or paralysis of the constrictor muscles of the iris may also cause mydriasis. Whether we are dealing with a relaxation of the sphincter or the over-stimulation of the dilator of the iris in phaeo-mydriasis is still undecided.

In studying the pupils we must be sure that they are movable, that the irides are not bound down by adhesions to the lens. We must also consider the possibility of miotic or mydriatic drugs having been used in the eye or having been taken internally, and also the possibility of diseases such as glaucoma, modifying the size of the pupils and their response to light and accommodation.

The pupillary reflex to light may be tested in the daylight or with reflected artificial light in the dark room. In either case the pupil of each eye should be tried separately and direct as well as consensual reaction tested. The examination of the light reflex in daylight is done by having the patient face the light and fix a distant object. Both eyes are screened with the hands, one hand then the other is raised alternately to note the direct response to light. By covering and opening only one eye with the eyes fixed at distance the indirect response or consensual reaction of the other eye can be studied. The examination with artificial light is more simple and more sensitive than the daylight test. Light is reflected with a head mirror from a light behind the patient or an ophthalmoscope is used for the purpose. It is important in making this test to have the patient gaze into distance, otherwise the accommodation contraction associated with close fixation might be mistaken for the light reflex.

Examination for convergence or accommodation reaction is best made by having the patient face the light and fix an object in the distance, then suddenly get him to look at the examiner's finger, placed in the middle line before him at a distance of 10-15 cm. Prompt contraction of both pupils follows.

To get a clear conception of the pathological disturbance in pupillary reactions, a division should be made of the cases into those in which the afferent arm of the reflex pupillary are is involved and those involving the efferent or motor arm. The cases in which the afferent impulses are affected may again be divided into those with an absolute

pupillary immobility and those in which the pupils lose their response to light but maintain their reaction to accommodation and convergence. The absolute immobility of the pupil, in which there is response neither to light nor accommodation, which is also known as reflex deafness or amaurotic stare, results from inactivity of the retina or the optic nerves through disease or injury. For example, in an eye blind as the result of an injury of the optic nerve with a break in its continuity or of atrophy of the nerve, lights reflected into the blind eye makes no impression on the size of the pupil directly examined, nor on the pupil of the non-affected eye. In such cases light reflected into the seeing eye is marked by direct reaction and by consensual reaction of the blind eye.

Cases of blindness with retention of reflex to light and accommodation are quite rare. They are due to disease beyond the pupillary center in the primary optic or visual center, either in the optic radiation or the brain cortex. We see such cases in uremic blindness, in which the visual centres are rendered inactive through the uremic poison.

Rarely a loss of the light reflex, direct or consensual, in a seeing eye has been observed. This is supposedly due to disturbance in the course of the pupillo-motor efferent fibres after they leave the optic tract.

A reflexly immotile pupil in which response to accommodation or convergence is retained was first described by Argyll-Robertson in 1869. He also pointed out its relation to tabes and other nervous affections. It is generally known as the Argyll-Robertson phenomenon. It nearly always occurs bilaterally and is a very important diagnostic sign, especially of metasyphilitic affections of the central nervous system. It is considered one of the cardinal symptoms of tabes dorsalis, and is also found in progressive paralysis, though less frequently than in tabes. Most cases of Argyll-Robertson pupil are associated with contracted pupils, especially in tabes. Notwithstanding the miosis further contraction takes place with accommodation and convergence. The contracted pupils as a rule lose their round shape and become somewhat irregular or cornered. The seat of the lesion in the Argyll-Robertson pupil has not been determined. Though it is generally believed to lie in the fibres that leave the optic tract to go to the pupillo-contractor centres.

Cases in which the efferent arm of the pupillary reflex (motor oculi) are affected frequently result from nuclear involvement of the third nerve and are associated with other symptoms of motor oculi paralysis. The pupil is wide and does not respond directly or indirectly to light nor to accommodation. Vi-

sion is not affected. Paralysis of the intrinsic ocular muscles, causing mydriasis and loss of accommodation, with no involvement of the extrinsic muscles (ophthalmoplegia interna) is not uncommon and is believed to be due, in the large majority of cases, to lues, affecting the contractor nucleus and the nucleus of accommodation. Ophthalmoplegia interna sometimes occurs as a congenital condition. It occurs nearly always unilaterally.

Applying the pupillary phenomena to diseases in the order of their importance we would naturally turn at once to tabes dorsalis, for it is well known that of all of the affections of the cerebro-spinal nervous system none bears the same intimate relation to the eyes as tabes. This is not only true absolutely because tabes is the most frequent of the organic diseases of the nervous system, but also relatively for nearly every case of tabes is associated with some abnormality of the eyes, more especially of the ocular muscles, the nerves and the pupils.

The pupillary signs of locomotor ataxia are especially important from a diagnostic standpoint as they frequently are the initial symptom of the disease. Sluggish response of the pupils to light may prevail for a long time before the typical Argyll-Robertson pupils—a complete loss of light reflex and retention of the response to accommodation and convergence—develop. Sluggish pupils may antedate any other symptoms of tabes by as much as ten years, hence the occurrence of such in an otherwise healthy subject, especially if associated with miosis, directs suspicion to a latent tabes. The fully developed Argyll-Robertson pupils are present in about 75 per cent or more of cases.

Miosis is present in 30 to 50 per cent of all cases of tabes and occurs almost without exception in cases with the Argyll-Robertson phenomenon. Sometimes the pupils show irregularity in shape and inequality in size. The miosis is believed to result from relaxation of the dilator muscles, brought about by affection of the cord in the vicinity of the ciliospinal centre. It occurs at any stage of the disease, although it is usually an early manifestation and lasts throughout its entire course. It is of diagnostic importance only when associated with reflexly immotile pupils, for miosis as such may be present physiologically and is seen in various diseases, especially in paralysis of the insane. In the late stage of tabes the pupils may become wide and immobile on account of paralysis of the sphinctor muscle, though not as frequently as in general paresis.

Another pupillary symptom of importance in locomotor ataxia, on account of its almost

constant presence, is the loss of sympathetic reflex or the inability of the pupils to respond to sensitive stimuli. Occasionally the paradoxical pupils, those which dilate upon exposure to light and contract in the dark, or a condition known as "hippus" in which the pupils contract and dilate alternately, has been observed during the course of locomotor ataxia.

In parietic dementia, the Argyll-Robertson phenomenon is also a frequent and important symptom, occurring in about 50 per cent of cases, or even more frequently if the cases with sluggish response to light were included. The consensual light reflex is often affected before the direct reflex. Contrary to tabes miosis is not a common accompaniment of the Argyll-Robertson pupil as it occurs in parietic dementia. According to most authors, a slight anisocoria is present in about 22 per cent of progressive paralysis. As the pupils in tabes seldom show an inequality in size this is an important differential sign. The rigid pupil or loss of all reaction is present in 9 per cent or more of the cases of progressive paralysis, while in tabes loss of the convergence reflex is quite rare.

In cerebral syphilis as such the loss of pupillary light reflex is quite infrequent, whereas we find the rigid dilated pupil almost characteristic of this condition. Unilateral mydriasis with loss of response to light and accommodation is an almost certain sign of syphilis of the brain. In dementia praecox the pupils are wide but respond to light and accommodation.

Observations of the many cases of encephalitis lethargica made in recent years indicate that ocular symptoms are quite constant in this disease. In many of the cases ophthalmoplegia interna, (dilated pupils inactive to light and convergence) evidently the result of involvement of the contractor nucleus, was present. In a few of the reported cases a condition just the reverse of the Argyll-Robertson phenomenon was observed where the light reflex was preserved and the reaction to convergence and accommodation lost. Such cases indicate involvement of the eiliary and adductor muscles and not of the muscles of the iris.

Of the purely spinal affections syringomyelia is the only one in which the pupils furnish a sign of diagnostic value. Horner's Syndrome, in which miosis is associated with a mild ptosis, slight exophthalmus, disturbance of secretion of sweat and vaso-dilatation in the region of the face, should always lead to the suspicion of a syringomyelia. It has been found that in 25 per cent of cases of syringomyelia the pupils are contracted, owing

to involvement of the dilator nerves in their course through the cilio-spinal centre.

While multiple sclerosis is frequently associated with ocular symptoms such as nystagmus, paralysis of the ocular muscles and atrophic changes in the optic nerves, disturbance of the pupillary reactions is rather infrequent. The Argyll-Robertson is present hardly once in 100 cases. The size of the pupils varies, while inequality is not infrequent.

In functional neuroses the pupil reflexes may aid in the diagnosis. In hysteria the pupils are usually well dilated but the reflex to light is nearly always retained. Recently cases of hysteria have been reported in which response to all of the various stimuli were lost. During an epileptic paroxysm the pupils are nearly always contracted early and become wide when the tonic spasm comes on and remain so until after the attack. Reaction to light is nearly always lost during the epileptic convulsion, the size of the pupils is subject to frequent and rapid variation or a typical hippus may prevail.

In uremic eclampsia the pupils are usually wide though they may be of an average size or contracted. Reaction to light is maintained even in the presence of a high degree of amblyopia.

In acute inflammatory affections of the membranes of the brain and cord the pupils are of diagnostic value only in a corroborative way. In the early stage of acute meningitis of any kind, marked contraction of the pupils is present (irritative miosis). In a small percentage (3 per cent) of these cases reaction to light is lost and in nearly all of them the amplitude of reaction is reduced. In about one in every ten cases anisocoria is present. Whenever mydriasis comes on suddenly in these cases it is a grave sign, indicating paralysis of the third nerve.

In other intracranial affections the pupils vary. Perhaps the most constant and important pupillary sign of intracranial involvement is the sudden unilateral dilatation and reflex rigidity of a pupil nearly always on the side of the lesion. This symptom, the Hutchinson sign, occurs in half of the cases of apoplexy. The mydriasis is believed to result from pressure on the motor oculi and is often accompanied by other symptoms of third nerve paralysis.

In coma of intracranial hemorrhage inequality of the pupils is characteristic and may serve as a differential sign between apoplexy and other conditions associated with sudden loss of consciousness. In coma from alcoholism, opium poisoning, epilepsy, uremia, etc., the size of the pupils is nearly always equal. The pupils in such cases, except

in opium poisoning, are wide.

In hyperthyroidism the pupils are often dilated, an undue stimulation of the sympathetic resulting from the excessive thyroid substance.

Before closing I would call attention to the inequality of the pupils which at times accompanies aneurism of the thoracic aorta. The usual condition is left-sided mydriasis, due to irritation of the sympathetic nerves in the cervical region. In pronounced cases miosis has been observed, the sympathetic having been paralyzed, through pressure of the aneurism on the sympathetic.

DISCUSSION

S. G. Dabney, Louisville: Dr. Pfingst has given us a very interesting summary concerning the pupils in the diagnosis of various pathological states. I will discuss only a few points in connection with his paper.

Dr. Pfingst's remarks pupillary changes in connection with the spinal cord are also interesting. He spoke of the pupil being contracted in opium narcosis and also during sleep. Both are supposed to occur for the same reason, viz., abolition of peripheral irritation.

One point he did not mention is that a small pupil is sometimes seen from a blow on the eye. That occurs occasionally. It is supposed to be due to spasm of the sphincter muscle and is often accompanied by diminished tension. And the reverse is not at all rare, viz., dilated pupil from a blow, sometimes temporary, sometimes due to tear of the sphincter muscle and is permanent.

John J. Moren, Louisville: I am glad to have heard Dr. Pfingst's most excellent paper. So far as the neurologist is concerned the eye reflexes are among the most important that we have to consider. The Argyll-Robertson pupil is diagnostic when associated with other symptoms of tabes. The question always arises however, whether this phenomenon may be found in conditions other than tabes. Quite recently there have appeared a number of articles on the Argyll-Robertson pupil in relation to the sequelae of encephalitis. A number of cases have also been reported, where tumors about the ventricle or the aqueduct of Sylvius gave rise to Argyll-Robertson pupil. Often patients with gunshot wounds of the head exhibit typical Argyll-Robertson pupil. Roentgen-ray examination has shown a splinter of bullet located in the immediate vicinity of the third ventricle or aqueduct of Sylvius.

The pupil that especially concerns the neurologist, the cause of it and how to interpret it, is the irregular pupil. If the pupil is sluggish in its response to light in the presence of normal accommodation, it is almost certainly due to syphilitic infection. It recall one case with

which Dr. Dabney is familiar, and a statement made by the patient impressed me very much. I saw the man shortly after he returned from New York, and he said one of the neurologists there told him it was perfectly natural to have a dilated pupil in a neurasthenic individual. I have never seen an unequal pupil in what I would call a neurasthenic. If there is an unequal pupil present in a patient today that was not there previously during his life, I think there is some reason for it. Unequal pupil does not occur simply from nervousness, there must be something else. Just what that is oftentimes we may be unable to determine.

Suppose a man, for instance, is hit on the head and rendered unconscious, he has unequal pupils which are rigid to light, possibly miosis,—what does that mean? It is only a reflex phenomenon following the injury within the cranium. In a case of this kind I recall having heard Dr. Da Costa say he would immediately trephine. This was during one of his talks on brain injuries. He said if a man receives a blow on the head, is in an unconscious state, if the pupils are irregular or unequal and rigid to light, he would trephine. Under such circumstances before operating it would seem reasonable to determine whether there was an increase in intracranial pressure; and if removal of some of the cerebrospinal fluid lessened the coma, would operation be necessary to relieve the patient?

I am glad Dr. Pfingst mentioned the question of encephalitis: I have seen a number of these cases with eye symptoms, have seen the patients fitted with glasses by glass-fitters on the street, and be perfectly miserable afterward. Very strong glasses are put on these individuals because they have lost accommodation and not the light reflex. Some patients are relieved, but as a rule more harm than good is accomplished by these glass-fitters. My experience has been that loss of accommodation is nearly always a sequel of encephalitis. Recently I saw an article on this subject in which the author reported quite a number of cases of so-called Argyll-Robertson pupil following encephalitis.

J. Rowan Morrison, Louisville: I have certainly enjoyed Mr. Pfingst's most excellent paper. It may be worthy of note that Cabot, in his *Clinical Diagnosis*, edition of 1912, states that examination of the pupil is not nearly so important as it usually supposed to be, because it varies so much one way or the other that one cannot attach the importance to it as was formerly done. If he had heard Dr. Pfingst's paper I do not believe he would have expressed himself in that way.

As to the question of irregular pupils: I used to think ophthalmists devoted entirely too much attention to that feature, but the longer I live the more am I convinced that an irregular

pupil means much more than I formerly believed I saw a patient some time ago who had an irregular pupil, he had syphilis with beginning locomotor ataxia or general paresis. He consulted a neurologist in New York who said it was syphilis of the vessels of the brain, or vascular brain syphilis, and this did not progress to general paresis. This man has received fairly intensive treatment with arsphenamin and mercury and the pupil has regained its normal size. In other words, there was probably only disturbances of the vascular supply to the nerve tissue rather than destruction of the nerve cells themselves.

VAGINO-RECTAL ANOMALY: SIGMOIDAL DIVERTICULITIS: CASE REPORTS.*

By LOUIS FRANK, Louisville.

In the following two cases the pathology involved practically the same topographic region although occurring at different extremes of life and from entirely different causes.

CASE I. The first patient is a female child sixteen months old first seen about a week ago. She was brought to us with the diagnosis of intra-abdominal sarcoma. This diagnosis seemed rather questionable, and after making an examination I did not believe the child had sarcoma; and further discussion with her attendant also developed a doubt in his mind about the diagnosis.

The history obtained was that an abdominal tumor had been present since shortly after birth, and had gradually increased in size. The tumor was quite movable. We know that intra-abdominal sarcoma usually develops in the retro peritoneal lymph glands or in the kidney, and these tumors are not movable. The growth was somewhat nodular, not distinctly hard, as we could make some impression upon it.

In addition to the abdominal enlargement the child had a congenital defect, in that the cloaca had never completed the formation of separate vaginal and rectal structures, the rectum emptying directly into the posterior vaginal wall. There was no perineum, and the child had no control over its fecal evacuations. Intense colic had been present at times, the child placing its hands upon the abdomen and showing evidence of severe pain.

We, though exploration was justifiable, recognizing that if there was a sarcoma present operation was imperatively demanded, and if as we suspected the child had some anomalous development of the intestinal tract, obstruction, diverticulitis, or something of that kind, benefit might be derived from sur-

gical treatment. The abdomen was accordingly opened in the median line and the mass already described was found to be entirely in the sigmoid. Under the anesthetic we examined the child very carefully, which we had been unable to do satisfactorily without anesthesia, and found the recto-vaginal opening barely admitted a No. 16 French sound. This opening was widely dilated. The sigmoid when delivered from the abdomen was about thirty inches in length and about four inches in diameter, tremendously thickened and filled with hard fecal masses. Prior to operation it was thought the child might have Hirschsprung's disease, but it developed that only the sigmoid was involved. The colon was greatly thickened owing to nature's effort to overcome the obstruction below.

Another striking feature to me was that the child's appendix was larger than that of the average adult, but as it showed no evidence of disease it was not removed. The abdomen was closed in the usual manner and I think the child will make a satisfactory recovery from the operation, and if we can keep the recto-vaginal opening well dilated probably the condition of the sigmoid will improve. Later a plastic operation will be undertaken having for its object separation of the vagina from the rectum and establishment of an anal opening in the normal situation as also construction of a normal vagina.

CASE II. The second patient is a male aged about fifty-four years who also has an affection of the sigmoid due to an entirely different cause. I saw this man two days ago for acute peritonitis of doubtful origin, the symptoms being of such character that he called the family physician less than twenty-four hours before I saw him. He had been complaining of diarrhea for several days prior to the present attack. Aside from this he had never been ill, had complained of no digestive disturbances, abdominal pain, "indigestion," or "dyspepsia," as such affections are termed by the laity. In other words, the man had been normal and healthy all his life.

Examination showed considerable abdominal distension, temperature 102° F., and he had vomited once or twice, the vomited material having a fecal odor. It was thought he had intestinal obstruction. He had no more marked tenderness in one part of his abdomen than in another; pain was quite generally distributed over the abdomen; there was no extreme tenderness over the appendix nor in the gall bladder region. On deep pressure, however, there was a little more rigidity on the right than on the left side of the abdomen. The pain developed suddenly, beginning in the upper abdomen and extending

*Clinical report before the Louisville Medico-Chirurgical Society.

downward on the right side. It would require only one-quarter grain of morphine to produce relief. Notwithstanding the location and character of the pain, however, we believed as one-quarter grain of morphine was sufficient to give relief, we could exclude perforation of any of the upper abdominal viscera. We thought he might have had a chronic appendicitis which had suddenly become acute and perforated rapidly giving rise to widespread peritonitis.

Celiotomy by right rectus incision. The appendix was found perfectly normal. A considerable quantity of purulent looking material without odor escaped. A number of enlarged lymph glands were noted. The upper abdomen was then explored revealing a "puddle" of pus, or at least fluid which had become purulent, with many lymph flakes in it, lying between the gall bladder and the stomach. No evidence of perforation could be found. The pus pocket was thoroughly cleansed by wiping with gauze; there was no odor to the fluid and no induration or infiltration of the surrounding tissues.

Exploring the lower left abdomen, about the sigmoid we found a mass nearly the size of a fist which on exposure proved to be collection of epiploic appendages evidently at the site of a perforated sigmoidal diverticulitis. By this time the man was in such a desperate condition that we did not attempt any radical procedure. Two drainage tubes were introduced to the site of the mass and another carried deep into the pelvis and the abdomen closed. There soon occurred an accumulation of material in the stomach, and a large quantity of grumous ill-smelling fluid was removed by lavage, showing that there had occurred regurgitation from the upper intestinal tract. On account of the sigmoidal perforation we felt it unwise to use the Murphy drip, therefore gave our saline solution under the breasts and in addition some glucose intravenously.

Examination this afternoon showed the abdomen soft, the patient has been passing gas, his pulse and temperature are normal, and it seems as if he will recover. I have seen two other cases of diverticulitis of the sigmoid that had perforated. In no case was the diagnosis made prior to operation.

Acute Leukemia in Children.—Morquio summarizes sixteen cases with necropsy findings. In one child of nearly 4 the acute leukemia with gangrenous ulceration of the tonsils had been mistaken for diphtheria. Acute leukemia may develop after any septicemic condition with a thymus-lymphatic constitution, probably from inability to realize normal phagocytosis. He regards acute and chronic leukemia as entirely different diseases.

PREVENTIVE MEDICINE IN THE FIRST YEAR OF LIFE.*

By JAMES W. BRUCE, Louisville.

There is no age period in which preventive medicine has the wide scope that it has in the first year of life. Preventive medicine constitutes at least 50 per cent of the pediatrician's practice during this period. The field of activity is so broad that it is impossible to cover it completely in a paper of this length. I will therefore only discuss the most outstanding features.

1. Prevention of Gastro-intestinal Indigestion.

This lead takes us into the difficult and intricate field of infant feeding. How can we prevent upset stomachs and diarrhea? Gastro-intestinal indigestion is generally due to one of the following causes and if we are keenly alive to these causes we can usually avoid this occurrence.

1. Overfeeding.
2. Feeding too close together.
3. Too much fat or sugar in the food.
4. Impure milk.
5. Hot weather and fever.

Let us discuss these points one at a time:

1. Overfeeding: A good simple rule for feeding a bottle baby is—1 1-2 oz. of milk and 1-10 of sugar for each pound of baby weight in 24 hours. For example, if a baby weighs 10 pounds, it would get 10 x 1 1-2 or 15 oz. of milk and 10 x 1-10 or 1 oz. of sugar in 24 hours. Of course we have to dilute this mixture with water or barley water and this is easily done if we remember that up to three months a baby takes half milk and half water, at five months, two thirds milk and one third water, and at ten months undiluted whole milk. Going back to our ten pound baby mentioned above, we will suppose it 2 months old.

Our formula would then be:

Milk, 15 ounces; water, 15 ounces; Sugar, 1 ounce.

This makes a thirty ounce mixture. We can divide this into six or seven feedings in 24 hours. If we give six feedings, there will be five ounces to a feeding. If we give seven feedings, there will be four and one half to a feeding. If these simple rules are followed, there will not be many cases of indigestion from overfeeding. Of course, if a baby cannot take this amount of food, the quantity must be reduced temporarily, until its digestion can take care of it.

There is a very important point to remember in feeding a baby that is under weight. Feed the baby according to what it ought to weigh and not according to what it does weigh.

*Read before the Jefferson County Medical Society.

For example, the average four months' baby weighs fourteen pounds. Suppose it weighs only ten pounds. Should we feed it as a ten pound baby or a fourteen pound baby? We should begin feeding it as a ten pound baby in order to prevent indigestion, but before the baby will gain much weight, we will have to increase feeding to what a fourteen pound baby would get.

2. Feedings too close together: It takes a normal baby about three hours to completely digest a bottle of milk, i.e., by the end of three hours the stomach should be empty. There is a great deal of variation about this; some taking more and some less. It is always desirable if possible to have the stomach empty when a feeding is given. For this reason, feedings should never be given oftener than every three hours, and for babies more than three or four months' old, every four hours. If food is put into the stomach before the previous meal is out of the way, it is very apt to cause indigestion.

3. Too much fat or sugar in food: Babies have a hard time digesting cream. We are much more afraid of rich milk than poor milk in baby feeding. That is why we never recommend Jersey milk, which contains 6 to 7 per cent cream, but rather Holstein milk or milk from a common cow which contains 3 to 4 per cent. Too much cream will make a baby vomit and also is very apt to cause diarrhea.

Too much sugar, on the other hand, rarely causes vomiting but is a common cause of diarrhea. Some sugars are more laxative than others, e. g., Mellin's Food and Dextrimaltose are very laxative, while cane sugar and milk sugar are much less so.

4. Impure milk: Spoiled milk is a cause of very serious upsets. We have excellent certified milk in Louisville and it is much the best food for most bottle babies. Where good certified milk cannot be obtained, it is always advisable to boil it. Bringing milk to a boil will kill all pathogenic organisms, including tubercle bacillus, dysentery, typhoid, and colon bacilli. In hot weather it is advisable to boil all milk, even certified. When we remember that milk is the most fragile article of commerce and how easily it is contaminated, it is not safe to trust the most carefully handled milk in summer without boiling it. Of course, boiled milk is constipating, but that can usually be overcome by giving more laxative sugar. As far as the taste is concerned, this rarely causes serious objection from the baby.

5. Feeding in hot weather and fevers: Under either of these conditions, the infants digestive capacity is reduced far below the normal level. In order to prevent upsets, there-

fore, the food must be weakened. For example, a normal baby one year old should be able to take undiluted cow's milk without difficulty. However, if the baby has tonsillitis and a temperature of 104 degrees, this milk would most likely cause serious indigestion. Half milk and half water would be as strong a mixture as one would use in the presence of that much fever. Also, in hot weather, it is safer to dilute the milk somewhat. On very hot days it is advisable to remove part of the cream.

Just a word about the use of "sour milk" in infant feeding. It has been known for many, many years that babies do well on sour milk. Nearly all babies in Holland are fed on sour milk. In most large cities in the United States, sour milk can be bought at the dairies in the form of "Culture milk," "buttermilk," etc. We believe that the virtue of sour milk lies in its sourness, i.e., in the lactic acid which it contains, and not in the bacteria which produce the sourness. It is not necessary, therefore, to go through the difficult procedure of souring the milk by means of cultures which we buy in tablet form. This we all know is a tedious and unsatisfactory process. If we simply add pure lactic acid to sweet milk, the result is just as good. A simple method of making it is as follows: Boil sweet milk one minute. This is done to sterilize it. Cool to room temperature. Add lactic acid slowly, drop by drop, with constant stirring. This is used in the proportion of 2 1-2 mms. of acid to one ounce of milk. Then add water and sugar as with any milk formula. Two points to be careful about are:

1. Add acid very slowly.
2. Do not add acid until milk is cool. If these points are not observed, the milk will form tough curds that will not go through a nipple.

II. Prevention of Respiratory Diseases.

The bugbear of the baby's life, especially in cold weather is the "common cold." Babies are very susceptible to colds and when they "catch" them are much more apt to suffer from complications than older people. The commonest complications are otitis media and bronchitis or bronchopneumonia. It is the danger of these complications that makes it so urgent to prevent "catching" cold. A "cold" is an infection of the nasopharynx. Infection gains foothold either by inhalation of bacteria from a person who has a cold or by so lowering body resistance that bacteria already present in the nasopharynx gain foothold and cause inflammation. The commonest ways of catching cold are as follows:

1. From someone who has a cold.
2. From poor ventilation.
3. From too warm clothing.

4. From exposure to draft or too few clothes.

1. We must remember that one cold is caught from a draft to nine that are caught from other people. The person who has a cold should be kept away from the baby just as if it had measles. If the mother catches cold she should wear a ganze mask all the time that she is handling the baby. Only in this way can contagion be prevented.

2. Just how poor ventilation predisposes to colds is not known; that is, whether it is by causing congestion of the mucous membrane, by lowering general resistance or what not. But there is no doubt that poor ventilation is one of the commonest predisposing causes of colds. The chief factor in ventilation in cold weather is the method of heating. The best method, by far, is the open grate, burning coal or wood. Here the products of combustion go out the chimney and not into the room. This produces a draft which draws in fresh air from outside. The worst method of heating is the gas or oil stove. Here the products of combustion go into the room, no draft is produced and no fresh air is drawn in from outside. Gas fires are cheap and convenient and are more generally used than any other form of heat, but babies kept in rooms heated in this way nearly always suffer severely from colds.

3. Too warm clothing produces colds by making the baby perspire. The perspiration dries and chills the superficial circulation thus lowering resistance and allowing bacteria already present in the nasopharynx to gain foothold in the mucous membrane and cause infection and inflammation.

4. Drafts and exposure to cold air can cause colds, but probably cause fewer of them than any of the causes mentioned. Most mothers are so afraid of drafts that they keep all the doors and windows shut and run a much greater risk from poor ventilation.

III. Prevention of Rickets

More time has been put on the study of rickets in the past two years than on any other disease of childhood and we now feel that we know a great deal about it. It has been shown that 90 per cent of babies between 6 and 18 months of age show more or less evidence of rickets, i.e., it is almost a universal disease. Rickets is a deficiency of bone salt—calcium phosphate—and is caused by failure to absorb this salt from the food, i.e., calcium phosphate is excreted in the stools instead of being absorbed by the intestines. Since bone salt is not absorbed properly, the bones become soft and so we find in rickets all sorts of bony deformities due to soft bones, such as bow legs, knock knees, deformed chests, square

heads, etc.

Fortunately we now know of two effective therapeutic agents which can both prevent and arrest the progress of rickets. They are cod liver and sunlight. Cod liver oil probably acts through the fat soluble A vitamine which it contains in large quantity, while sunlight acts through the ultra-violet ray. These two agencies act in some way to prevent the loss of calcium phosphate from the body, probably by stimulating the intestinal mucous membrane to absorb the valuable salt from the food. At any rate, shortly after administration of cod liver oil or ultra-violet rays are begun, calcium phosphate ceases to be discharged in the stools in large quantity and X-rays of the bones show that it is being deposited there.

Rickets is a preventable disease. The first evidence of rickets usually appears about the fourth month and consists of softening of the bones of the skull, called craniotabes. At this time cod liver oil should be begun and should be continued, except in hot weather, until the child is three or four years old. Extracts of cod liver oil are of no use whatsoever for this purpose as they contain no vitamine. There are several fairly palatable forms of cod liver oil on the market that contain 20-30 per cent pure oil. It is best to use one of these for children over one year of age. For babies less than a year, plain cod liver oil is best—giving ten to thirty drops three times a day.

Ultra-violet rays can be obtained from sunlight and also from the special lamps made for the purpose. Sunlight, while probably better than the lamps, is unreliable. The lamps are very effective and very convenient to use. However, cod liver oil is just as effective and much less expensive. The best way to prevent rickets is to give cod liver oil, except in hot weather, and then expose as much as possible to sunlight.

IV. Prevention of Anemia.

Babies fed entirely on milk or on milk and cereal are very apt to become pale and anemic when they reach 10 to 12 months. The cause of this anemia is somewhat problematical, but it is generally thought to be due to deficiency of iron in the food. In the new born baby there is a rich supply of iron stored chiefly in the liver. This iron is gradually used in the process of growth. There is not enough iron in milk, either human or cow's milk, to replenish this supply and by the time the baby is 10 to 12 months old the iron is exhausted and the baby is pale and anemic.

To prevent this condition, it is necessary to give iron from the sixth month and sometimes before that. The best form of iron is

the hemoglobin contained in beef juice. Juice is simply pressed from the beef and fed undiluted,—one ounce every day.

Another good way to give iron is in the form of green vegetables. Certain green vegetables, e.g., spinach, carrots, green beans, and peas are rich in iron and when properly prepared can be fed to babies from seven months on, except in very hot weather. If they cause indigestion, as in very hot weather, vegetable juice can be given instead. This is prepared by chopping the vegetables very fine, boiling them for thirty minutes, and straining off the vegetable pulp. Thus the iron and other minerals and salts are removed from the vegetable fiber and given in liquid form. I have never seen any bad results come from feeding a baby vegetable juice.

V. Prevention of Scurvy.

Scurvy is so well known at the present time that little need be said about it. The cause of scurvy is deficiency of water soluble C vitamin in the food. The symptoms consist of sore, ulcerated, bleeding gums and painful joints resembling rheumatism. It occurs most frequently in babies 6—18 months old. It can be prevented and promptly cured by feeding fruit and vegetable juices which contain the vitamin C. The best juices are orange and tomato juice. One ounce of one of these should be given every baby from the time it is 3 to 4 months old.

VI. Prevention of Contagious Diseases.

There are three deadly contagious diseases which should be blotted out of existence; smallpox, diphtheria, and scarlet fever. Vaccination for smallpox has been known for over 100 years and is required by law, and yet so many people manage to avoid being vaccinated, that every now and then a smallpox epidemic occurs such as the one which occurred in Detroit during the past summer. Before the advent of vaccination, it was estimated that 25 per cent of all children died of this disease. Smallpox as we see it today is much attenuated and not the horrible monster it once was. Without vaccination it would quickly revert to its former status. Every baby should be vaccinated by the time it is one year of age.

Ten years ago diphtheria toxin-antitoxin was discovered in Germany by Von Bering. Since that time it has become increasingly popular as its efficiency in preventing this disease has been demonstrated. Immunity conferred by toxin-antitoxin so far as we know lasts for life. Every baby should receive these injections as soon after one year of age as possible. The advantages of giving it at this time are: 1—Practically all babies at that

age are very susceptible to the disease. 2—The so-called false reactions, i.e., pain, swelling, fever, etc., almost never occur.

Within the past few months a toxin-antitoxin for scarlet fever has been discovered which is exactly analogous to the one for diphtheria. So far as is known it is effective in preventing the disease. It is not on the market yet, but will be in a short time. It should certainly be given the most thorough trial.

Preventive medicine in the first year of life is a big subject. It deals effectively with gastro-intestinal diseases, respiratory diseases, deficiency diseases, e.g., rickets, anemia and scurvy, and contagious diseases. It is a good plan for a mother to consult her doctor once a month during that first year for instruction in these matters even if the baby is perfectly well. Surely, "an ounce of prevention is worth a pound of cure."

DISCUSSION

James S. Lutz, Louisville: The prevention of respiratory diseases in children is a matter to which more attention should be devoted. Every practitioner of medicine is to be blamed for not preaching preventive medicine along the line of his specialty no matter what it may be. How often do we see several children in the family attacked by acute coryza, diphtheria, bronchopneumonia, etc., when these affections could have been prevented by proper instructions given to the family. I am a firm believer in the catarrhal vaccines, especially where there are four or five children in the family. As preventive measures I believe vaccines possess great value. The idea of preventing these diseases is so important that we ought to give greater consideration to it.

The toxin-antitoxin method (Dick) of preventing scarlet fever is going to be a great boon. I do not know of any disease that I have such an uncertain feeling in treating as scarlet fever. One never knows when his patients are doing well. They may apparently be progressing favorably, when edema suddenly develops and death occurs from nephritis. I believe many cases of nephritis in adult life date from childhood.

The toxin-antitoxin method of preventing measles is now being investigated, and it is hoped successful results will be secured. If we could prevent the three diseases, viz., whooping cough, measles and Scarlet fever, it would be a long step forward in prolonging life and raising children.

Walker B. Gossett, Louisville: Dr. Bruce recommends feeding the baby every three hours for the first few weeks of life. This has always been my custom and I believe it is the proper one. I have noticed lately that some of the doctors in hospitals have issued orders that the newborn baby shall nurse every six hours during the first three days. Formerly we had them nurse every two and a half hours, but recently we have adopted the schedule Dr. Bruce suggests, i.e., every three hours. When mother and baby leave the hospital the baby is to nurse or fed every three hours from seven o'clock in the morning until ten at night. This schedule is followed until the baby is three months old unless it happens to become ill.

C. W. Dowden, Louisville: I wish in closing Dr. Bruce would tell us something more about the Dick test. How soon does he advise that it be applied after birth, and how soon would he attempt to immunize the child.

I would also like to have his opinion about the advisability of administering iodine in some form to babies who are very fat and with evidences of hypothyroidism.

James W. Bruce, (In closing): Louisville—

As to the feeding schedule of newborn babies for the first three days it does not make much difference how often the baby is fed. However, I think the six hour schedule is entirely too long. While the baby does not get much milk in nursing during the first three days, still frequent nursing is advisable to stimulate the mother's breast, and I think the three hours schedule is better than the six hour. As to the use of a three or four hour schedule after the milk has started, or after the fourth day. There is a great difference of opinion about this. If the baby is born in Chicago a four hour feeding schedule is used, if in Boston or New York the three hour schedule is applied, and in either case the baby seems to thrive and get along all right. So it seems to resolve itself in the matter of geographical location. Young babies may be fed on four hour schedule successfully if they do not cry too much. We do not like to see young babies cry very much because the umbilicus is very weak and they are apt to develop hernia.

Treatment of Febrile Abortion.—Winter recommends bacteriologic examination of the vaginal secretions in infected abortions. When there is a prevalence of streptococci, especially of hemolytic type, treatment should be conservative. If bacteriologic examination is impossible, the practitioner should wait for four or five days. If the temperature then is normal, he can evacuate the uterus four days later. Quinin must always be used. With complications present, the uterus should never be evacuated.

POST-OPERATIVE INTESTINAL OBSTRUCTION: RELIEVED BY FURTHER SURGERY AND THE APPLICATION OF VENO-CLYSIS. CASE REPORT.*

By GEORGE A. HENDON, Louisville.

On the case to be reported the term venoclysis is adopted to represent the method used to keep the patient alive, that is by the continuous introduction of fluid into a vein. The names "continuous venous drip" and "venous infusion" were considered, but discarded as they hardly seemed appropriate. Proctoclysis and hypodermoclysis have long been utilized, and no great violence is done medical vocabulary by introduction of the term venoclysis to express the method to be described.

The case I wish to report is primarily one of complete intestinal obstruction of forty-eight hours duration from adhesions subsequent to appendicectomy. When the abdominal cavity was opened for relief of the obstruction, the small intestine was found greatly thickened and incorporated in a dense mass of organized adhesions. The mass felt like a "harness shop with the presence of trace chains, bridles, cheek reins, etc." The loop with greatest involvement was finally freed, isolated and brought to the surface. I then adopted a measure which seemed to me would reduce shock and save time yet accomplish the same purpose as resection. We all know that intestinal resection is always accompanied by profound shock, although great lengths have been ablated without fatal result; but we are also aware that removal of even a small section of the intestine intensifies the operative shock in great degree. Therefore I adopted measures to avoid this. Clamps were applied to the gangrenous intestinal segment outside the abdominal cavity; a lateral anastomosis was then made below and the intestine sutured to the parietal peritoneum. Within forty-eight hours the gangrenous segment had sloughed away leaving the two openings as shown on the diagram exhibited. The chances of subsequent permanent fecal fistula were reduced to some extent by the lateral anastomosis.

I believe this is an improvement over the Mikulicz operation because in resecting the gangrenous intestinal loop the mesentery must be divided and provision has to be made for controlling hemorrhage; moreover, there is the subsequent shock incident to resection.

I have found the method described of decided value in dealing with intestinal perforations instead of performing resection. In closing the perforation by suture one neces-

*Clinical report before the Jefferson County Medical Society.

sarily almost completely occludes the intestinal lumen. By the method just mentioned the perforation may be sutured and the intestinal lumen occluded, then by making a lateral anastomosis below considerable time is saved and the degree of shock reduced.

The patient in this case was of the characteristic type that we have often seen. He was in desperate condition when returned to bed, pulse 160, respiration irregular; he was in deep shock with cold body surface, clammy perspiration, etc., and such cases as we know generally terminate fatally. This appeared to be a case of that sort.

In June, 1923, Dr. Matas, of New Orleans, La., read a paper before the American Surgical Association on the subject of continuous venous drip in desperate cases of this type. I had not seen his article at the time this patient came under observation, but had read abstracts of it which appeared in the literature, and concluded to follow his suggestions. An incision was made in the patient's left arm which exposed the median basilic vein; the vein was then opened and a tube introduced similar in type to one I had devised for use in a case seen six weeks previously. I first used a needle inserted into the vein, but within thirty-six hours the needle was dislodged by movement of the patient. To obviate that difficulty on the subsequent occasion the small canula which I exhibit was introduced into the vein and sutured in position. The rubber tube leading from the canula was connected with a thermos bottle containing normal saline solution with five per cent glucose. This solution was allowed to flow into the vein at the rate of forty to sixty drops each minute. This was continued over a period of eight days and nights, or one hundred and ninety-two hours. During that time the patient received twelve quarts of the solution.

For the first five days the patient was unable to retain water or food of any kind. He therefore derived all his fluid and nutriment from the continuous administration of saline and glucose solution. During the last three of the eight days he was able to retain some water and a little liquid food, and by the end of the eighth day he was considered so far advanced toward recovery that veno-clysis was discontinued.

With further reference to the technique of the procedure: The arm was placed on a straight splint so it could not be readily moved; the first six inches of the tube attached to the canula was anchored with adhesive strips extending downward along the arm to prevent displacement of the tube.

The patient's urine was tested every day

for the presence of sugar, but at no time was there any sugar reaction. Fortunately no phlebitis developed and the patient made a satisfactory recovery with the exception, of course, of the inevitable fecal fistula. Since then three efforts at closure of the fistula have been made, and the last one seems to have been absolutely successful.

Matas has employed this procedure on a number of occasions. Since observing the case reported I have read his article in the original, and those of you who are interested will find it in the May, 1924, issue of the *Annals of Surgery*. He has used it, I think, in twenty-six cases during the last eleven years.

Another point may be interesting: We all recognize how essential it is to keep the solution at the proper temperature. Matas refers to various methods for attaining this object. In the case reported the difficulty was solved by utilizing a thermos bottle for the reservoir and a thick stethoscopic tube as a means of conveyance instead of the ordinary soft rubber. This thick rubber tube was passed under the patient and his body reclined upon it without compressing the tube or interfering with the veno-clysis. The heat of the body and the thickness of the tube helped to maintain the temperature of the solution. The solution was placed in the reservoir at temperature of 120° F., and we found it was delivered into the vein at about 100° F. In very profound shock I believe great benefit might be derived by delivering the solution into the vein at temperature of 105° or even 110° F. Any amount of solution desired may be safely introduced.

Matas in his article also calls attention to the efficacy of this method in high fever. By introducing the solution into the vein at low temperature the febrile condition is successfully combatted.

The advantage in this method of treatment seems to lie in the certainty of delivering a given amount of fluid into the circulation. I think it is superior to continuous hypodermoclysis, because in the latter plan the fluid is not absorbed with sufficient rapidity to be of much benefit in the crisis of emergency cases; moreover, sloughing of the tissues results in many instances. It is much superior to proctoclysis, for the reason that patients profoundly depressed by shock have relaxation of the sphincter muscle and are unable to retain the solution; and while those less profoundly depressed may retain the solution, the power of absorption is so reduced by the general systemic disturbance that the fluid does not reach its intended destiny.

The method described also suggests many

speculative possibilities: It shows conclusively that the digestive apparatus need not be disturbed in feeding the patient to tide him over a severe crisis; that sufficient food to maintain life may be delivered into the circulation without passing through the gastro-intestinal tract; that when the gastro-intestinal tract is "out of commission" as often occurs by reason of shock, sepsis, dynamic ileus, etc., it can be allowed to rest until these conditions are overcome, life being maintained by delivering nutritive material directly into the venous system. I am quite certain this measure saved the lives of the two patients I have mentioned.

I present this method of treatment for your consideration, for approval or disapproval, and would be glad to have you say anything you wish for or against it, critical or hypercritical, because it is something in which I am deeply interested and may lead to further advances along the lines suggested.

DISCUSSION

E. S. Allen, Louisville: The case reported by Dr. Hendon is interesting from many standpoints. At the Chicago meeting of the American Medical Association I heard this subject discussed by several men. There can be no doubt that Dr. Hendon saved the life of his patient by the introduction of glucose into the vein, as the patient was unable to even retain water for a considerable length of time.

I did not exactly understand Dr. Hendon's method of keeping the fluid at a temperature of 100 degrees to 105 degrees F., during introduction into the vein of the patient. I hope he will explain this feature in closing the discussion.

C. Guy Forsee, Louisville: In regard to the temperature of fluid introduced into the vein: In cases of profound shock it has been my experience that whenever the rectal temperature is 95 degrees F., or less the patient never recovers. In cases where the rectal temperature is above 95 degrees F., no matter how profound the shock, the patient has a good chance for recovery as solution can be introduced into the vein at a much higher temperature than stated by Dr. Hendon. Normal saline solution introduced into the vein at temperature of 108 degrees to 110 degrees F., will save many patients who are profoundly shocked, not so much by the amount of fluid given as by the heat introduced. It is perfectly safe to use solution at temperature of 108 degrees to 110 degrees F., and I have done so repeatedly.

George A. Hendon, (In closing): In regard to the question of dealing with the gangrenous intestine: We simply clamp the gangrenous area and left that portion of the intestine outside the abdominal cavity; the gangrenous segment was not excised. Within forty-eight hours after

clamps were applied the gangrenous portion sloughed away. This method was followed to save time and avoid the necessity of suturing the mesentery to control hemorrhage. The plan followed also lessened the chance of a permanent fecal fistula above the gangrenous area.

As to maintaining the required temperature of fluid introduced into the vein: We found that the solution would lose about 20 degrees F., in transit. Of course, much depends upon the length and thickness of the tube. The tube used in the case reported was made of heavy rubber and about four feet in length. The solution was placed in the reservoir, which in this instance was a thermos bottle, at 120 degrees F., and we found it was delivered into the vein at about 100 degrees F. In the event it is desired that the solution enter the vein at a higher temperature, this can be easily accomplished by placing it in the reservoir at a higher degree; but one must always allow for a loss of 20 degrees F., in transit. By using a thick tube, passing it under the patient and allowing him to lie on it, the temperature of the solution can be maintained in the manner outlined.

RELAPSING PURPURIC ERUPTION.*

By BEN CARLOS FRAZIER, Louisville.

For several years I have had under observation a woman aged seventy-six who has complained of no ailment of consequence until quite recently. A few months ago in examining her urine I found a small amount of sugar. However, there were no other indications of renal disease.

About a month ago numerous purpuric spots suddenly appeared on her ankles which resembled the purpuric rheumatica seen occasionally. Several areas were so thick and dark in color that ulceration and perforation seemed imminent—and that is exactly what happened. She had a number of small ulcers on each ankle. After using hot applications for ten days the lesions healed. Later purpuric spots appeared on her legs, arms, back and thorax. The eruption developed rapidly and was very dark in color. The spots remained for four or five days then gradually disappeared, leaving pigmented areas. On two occasions her wrists and hands became badly swollen and numerous purpuric spots were noted thereon.

The patient has had no fever at any time. There has occasionally been some albumin in the urine; sugar has never exceeded one per cent. The last three or four days she has greatly improved.

At one time during the last few weeks she

*Clinical report before the Louisville Medico-Chirurgical Society.

had an acute diarrhea, the cause for which was not determined. There has been no microscopic blood nor mucons in the dejecta. Whether the purpuric eruption will again recur cannot be foretold. No new lesions have developed during the last week, and there is now no swelling of the hands and wrists.

The purpuric spots appeared primarily on the ankles, and later on various parts of the body. The only lesions that ruptured and ulcerated were on the ankles.

I merely report the case as one of recurrent or relapsing purpuric eruption resembling the cases seen from time to time during rheumatism and certain other systemic affections.

Continued report, May 9, 1924: The patient has shown slow but steady improvement. The purpuric spots have become smaller with each recurrence and the intervals between attacks longer. Whether she will ultimately make a complete recovery cannot be foretold. For nearly a month her urine has been free from sugar, occasionally a small amount of albumin and a few hyaline casts have been noted. The main trouble is that she has no appetite and cannot be induced to eat enough for proper nourishment and strength. She is cheerful, sits in a chair part of each day, and sleeps well at night. Joint pain and swelling have not recurred.

DISCUSSION

M. Flexner, Louisville: The case reported by Dr. Frazier may be one of true purpura hemorrhagica, but I do not believe anyone could make the diagnosis without taking both the coagulation time of the blood and also the bleeding time. From the description given there seems to have been a true extravasation of blood into the tissues.

The coagulation and bleeding time will definitely determine whether it is idiopathic purpura or due to rheumatism or some other cause.

Ether In Treatment of Peritonitis.—Kustner found that ether extracts fats and fatty acids from the pus in peritonitis. After evaporation of the ether, the peritoneum is covered with these substances; they have an antiseptic action, and continue the disinfecting action of the ether. The hyperemia induced by the ether is also favorable. Consequently, he considers the use of ether in large amounts as rational in treatment of purulent peritonitis. The ether should not be removed with gauze; spontaneous evaporation is better

RESULTS OF TREATMENT OF TUBERCULOSIS AT HAZELWOOD.*

By S. W. BATES, Louisville.

When our secretary asked me to write a paper to be presented at this meeting showing the results of treatment of Tuberculosis at Hazelwood, my first inclination was to be honest with you and say frankly, "I don't know," and then I thought of foisting on you a formidable array of statistics and tables which would, as the Irishman said to his valuable French friend, make a lot of conversation and not say anything, but instead of doing either of these things I shall try to tell you in a few words some of the things we have accomplished in the past four years at Hazelwood.

Hazelwood Sanatorium was first founded by a few far-seeing and generous individuals of Louisville and operated under the direction of the Louisville Anti-Tuberculosis Association for some twelve or thirteen years. The General Assembly of 1920 appropriated funds for the purchase of this institution and it was taken over on October 15, 1920, and has been operated since that date under the control of the State Board of Health, the name being changed to State Tuberculosis Sanatorium. During the years of 1921 and 1922 we had a small appropriation of State funds which was expended in badly needed repairs and equipment. Since that time no funds have been appropriated and we are forced to operate as practically a private institutional basis. This makes it necessary for all patients to pay their own way and while this rate is a nominal one we have had few patients who are able, on account of the expense, to remain in the sanatorium sufficiently long to enable them to get the maximum benefit and for this reason our percentage of arrested or quiescent cases is correspondingly reduced. The old idea of a change of climate being desirable or necessary still persists, not only in the minds of the laity, but to a great extent among the profession as well, in consequence of which, the tuberculous patient who is possessed of sufficient means "goes West" or elsewhere to waste time, energy and money "chasing the cure" when in nine cases out of ten he would have been vastly better off from every angle had he remained at home and taken the cure in a local institution.

Our treatment depends, in the main upon the time tried and proven trial of rest, food

*Read before the Kentucky State Medical Association.

and fresh air, proper rest being the most important factor and the most difficult to enforce. When we use the word rest as a part of the treatment of Tuberculosis we mean rest in bed and all febrile cases are required to remain in bed twenty-four hours per day. When the temperature has remained normal from two to four weeks, depending on the patient's general condition, he is put on graduated exercise with careful watching for reaction. The matter of food is always a difficult problem, but if the gastric function permits, we always prefer a well balanced diet and in no instance do we resort to forced feeding. In most instances the case that comes in complaining of loss of appetite and gastric disturbance, after a few days' rest in the open air shows a marked improvement in this respect and in a short while is taking sufficient variety and quantity of food.

We try to take a common sense view on the subject of fresh air. In our opinion it is

Condition on Admission	No.	Condition on Discharge		Unimp.	Prog.	Died	Avg. Length of Stay
		Appr. Ar.	Quies. Imp.				
Incipient	24	0	8	5	11	0	2 2-3 months
Moderately Advanced	89	6	12	38	24	1	4 1-2 months
Far Advanced	98	1	2	21	34	21	4 1-3 months
Potts Disease of Spine	1	0	0	0	1	0	2 months
Undetermined	1	0	0	0	1	0	1-2 months
No Examination	1	0	0	0	1	0	1 day
Total	214	7	22	64	72	22	2 1-3 months

badly overdone in many instances. Sufficient fresh air can be secured without subjecting the patient to unnecessary hardships. Many patients in the early and curable stages will give up treatment rather than submit to the rigors of sleeping out of doors in extreme cold weather and in the far advanced and incurable cases we see no reason in subjecting them to the added discomfort entailed by outdoor living. It is a lamentable fact, but true, that the vast majority of cases of Pulmonary Tuberculosis are in a moderately advanced, or often far advanced, stage before a diagnosis is made or any rational treatment is begun. We are continually admitting patients to the sanatorium who have been working regularly or intermittently up to a few days or weeks prior to coming to us who on examination show a temperature of 101 and 102, great emaciation and all the physical signs of far advanced Tuberculosis. It is needless to say that sanatorium care offers little, if anything in such a case. A majority of our cases are of this type and we are therefore credited with failure to cure or relieve a case that was incurable long before we saw them. Statistics as to results of treatment in a tuberculosis sanatorium are far from being as reliable as we would have them be,

as we find it almost impossible to keep in touch with the discharged patient. The long period of observation necessary and this inability of keeping track of discharged patients, precludes the possibility of showing end results of treatment with any degree of accuracy. We are including a report of 214 cases treated and discharged during two years ending July, 1924. We use this period to present average results. We could have fattened our batting average by including a record covering 1921 and 1922 when we admitted and discharged several hundred ex-service patients of U. S. Veterans' Bureau, a large majority of whom were early, many of them quiescent or arrested. From October 15, 1920 to July 1, 1924 there have been admitted 779 patients.

The following table covers the period referred to above and we consider it a very good showing when the type of cases is taken into consideration.

It may strike you as strange that on apparently arrested cases appear in the list of incipients. This is due to the fact that no case is considered arrested until free of symptoms for a period of three to six months. A number of these cases we now know have remained free of all symptoms until this date but this report only takes into consideration the condition on date of discharge. A glance at this table shows very clearly the necessity of early diagnosis and treatment.

Out of twenty-four incipient cases with an average of only 2 2-3 months' care 33 1-3 per cent were discharged quiescent, 20.77 per cent improved. The moderately advanced, with an average stay of 4 1-2 months, show 6 or 6.6 per cent apparently arrested, 12 or 12.5 per cent quiescent and 38 or 40.2 per cent improved, while in the far advanced list out of 98 cases only one was discharged apparently arrested, two quiescent and 34 improved, while 21 or 21.5 per cent died in the sanatorium, with an average stay of 4 1-3 months. The percentage of mortality, 10.3 per cent is high which is easily explained by the fact that 98 or 45 per cent of our admissions in this list were far advanced cases on admission and a number of them died in less

than one month, and 95.5 per cent of our total mortality comes from this list of 98 patients. These figures while not encouraging as a whole show very clearly that prompt and satisfactory results may be obtained if treatment is instituted early in the course of the disease and that the ratio of recovery or improvement decreases rapidly in the advanced stages.

As stated before, we rely principally for results on the regular routine of sanatorium rest, etc., but use, in properly selected cases all the recognized methods of treatment that have proved to be worth while.

Tuberculin has been used in very few cases as we believe it to be a remedy capable of doing a great amount of harm and though we have seen some good results, apparently, from its administration, in the main the results have not been satisfactory and we would not advise it except in few cases and only when the patient can be under constant medical supervision and observation. The same holds true of the various forms of vaccines that are advocated from time to time.

Artificial Pneumothorax has proven very satisfactory in some cases and equally disappointing in others. In the early unilateral case especially of hemorrhagic type the results are usually good, providing a satisfactory collapse of the lung can be affected but even in the cases of this type we frequently meet with adhesions that prevent the compression of the lung and failure results. All too frequently infection takes place and pyopneumothorax results.

Remarkably good results are occasionally observed in the old cases with large cavities where a complete collapse can be obtained, but these are the exception rather than the rule. We have succeeded in controlling severe and persistent hemorrhage by this means but its effectiveness here as in the other conditions is dependent on the extent of collapse secured. Some enthusiasts have advocated the use of this measure in all cases as a cure but it is in no sense to be considered as such but merely a valuable adjunct to be used when indicated. We hesitated to use this measure in a number of cases in which it was indicated for the reason that the stay of patient in sanatorium was too short to expect any positive results. This procedure when once instituted should be kept up for from one to three years if any good results that may be obtained are to be permanent.

Heliotherapy has been used in a number of pulmonary cases without appreciable effect except in a few instances. In Tuberculosis of larynx and peritoneum, results have been very gratifying in most instances. In six

cases of Laryngitis all symptoms have been relieved and improvement has been manifest in nearly every instance where the pulmonary lesion has not been so far advanced as to preclude any possibility of relief. In these applications we have used both the reflected sun rays and quartz lamp with practically the same effect. We are using the latter almost exclusively at this time owing to the ease of application and its availability at all times. In the treatment of peritoneal cases we have used the mercury vapor lamp with most satisfactory results.

In every case treated by this method prompt response has been manifest and in four cases that have continued the treatment sufficiently long all symptoms have disappeared. Of these four cases, two had had the abdomen opened and drained by two prominent surgeons of this city and a third by a surgeon out in the State. In each case the abdominal incision had failed to heal and the effusion had promptly returned. One of these cases had a slight activity in one apex with temperature and positive sputum and required repeated withdrawal of the effusion for relief of pressure symptoms. This case was discharged on October 28, 1923, and continues in apparently perfect health with no return of symptoms. Two others remain in equally good condition after six months and the other is still under treatment with every prospect of a cure. While it is true that some of these cases recover spontaneously without any treatment, yet the prompt results obtained in these cases leads us to believe that this treatment is well worth the trial in all these cases. While the improvement in most cases is slow and tedious, if persisted in, we believe the results shown will justify the time and effort expended. As stated in the beginning of this paper one of our greatest difficulties is in keeping patients under treatment long enough to show decided results. The sanatorium is to a great extent an educational institution and unless the individual remains long enough to have it firmly fixed in his mind that the arrest or cure of his condition means a constant and persistent fight on his part for a period of at least one to three years it has failed in its mission and he has practically wasted time and effort. We have in the sanatorium at all times just two classes of cases. Those who want to go home because they are getting so much better and those that want to go because they are growing worse. In no disease perhaps, does the state of mind and the attitude of the patient play so important a part as it does in those who are the victims of Tuberculosis.

While the hopeful state of mind of the tuberculous is proverbial, and he is usually very sanguine as to his ultimate recovery, at the same time he is usually a very impatient individual and it is difficult, and frequently impossible to secure from him the cooperation that is absolutely essential if any good results are to be obtained from sanatorium treatment.

After a few weeks of rest in bed patients frequently show a marked increase in weight, strength and general feeling of well-being and it is very hard to convince them that they are not well or at least on the high road to recovery, and far too many of them leave the sanatorium at this stage, only to shortly drift back into the old habits and manner of living that sooner or later breaks down the resistance with a resultant lighting up of the old process. In this connection the patients' medical advisor can be of great assistance and confer a favor both on his patient and the institution to which he is going by being perfectly frank in telling him what to expect and not allowing him to enter with the expectation of being cured or materially benefitted in a few weeks' treatment. We are continually admitting patients who have never been told they have Tuberculosis, having been sent away with such a vague statement as a spot on the lung, a choked lung or other meaningless term. Very few medical men hesitate to tell their patients they have Pneumonia or Typhoid, both of them serious diseases and showing about as high a mortality as the early diagnosed case of Tuberculosis, then why hesitate in the case of Tuberculosis when an early diagnosis and prompt treatment is imperative and if anything more essential than in either of the other cases. I would like to say something in regard to the respective merits of sanatorium and home treatment of the tuberculous but I realize I have already wandered far afield from my subject of the results of treatment.

I wish here to emphasize again the necessity for early diagnosis and treatment. Early diagnosis of Tuberculosis is not always easy but it can be made by any practitioner in Kentucky who is on the alert for it and is willing to expend the time and effort necessary.

The records of all Tuberculosis Sanatoria show more clearly than anything else just how important it is that diagnosis be made early and treatment instituted without delay. If we wait for the appearance of fever, night sweats, loss of flesh and tubercle bacilli in the sputum we have, in most instances, sinned away our day of Grace and lost the fight be-

fore it is begun.

Sanatorium care and treatment of the tuberculous has withstood the test of time, and while it is in no sense a panacea for this disease, it offers to these unfortunates a greater degree of hope than any other known method of treatment. Unfortunately, we, in Kentucky, are not reaching the class of patients that should be provided for in a State sanatorium. The indigent or charity case who is the greatest menace to the general public is denied admission. Until provision is made for the treatment of early cases in sanatoria and for the hospitalization of the far advanced cases, Kentucky will continue to occupy the unenviable position she now holds in regard to the morbidity and mortality from Tuberculosis.

In conclusion we wish to say that in our opinion we are offering to our people at Hazelwood as good, and in many respects better, care and treatment than is provided by the various private sanatoria throughout the country and at a minimum expense. The tuberculosis problem merits the earnest and continued consideration of this Association and the State Tuberculosis Sanatorium is willing and anxious at all times to lend every aid and assistance possible toward the solution thereof. To this end we would enlist the cooperation of every member of the Kentucky Medical Association.

DISCUSSIONS

A. T. McCormack, Louisville: I am quite sure that no more important matter will be presented to this Association during its session than the paper just presented by Dr. Bates. After all, the problem in medicine is the problem of good health, and the greatest single menace that we have from a single disease in the State of Kentucky is tuberculosis.

The state tuberculosis sanitarium is really a private institution conducted in the name of the state by this organization. The treatment at the sanitarium is as good as is being given in any similar institution in the country. The cost is less than half of any state institution and far less than half of any other private institution.

The success in the treatment of cases of tuberculosis does not and will not depend on the sanitarium; it will depend on the family physician at home that makes the diagnosis of the case early enough. He must also make it plain to his patients and their families that the patient must be in the sanitarium for at least six months and for a maximum of two years, and that they must go there just as you would send students to a university—for a course in living with the handicap of having had a tubercular infection.

Unfortunately, as Dr. Bates has said, we have

no provision in Kentucky for the indigent except in Jefferson and Fayette Counties. They are not treated anywhere else unless the people make up the money and send them to the State Sanitarium.

One of the most serious things with which we are confronted is the sentimental feeling that we still have all over this country, that sort of surge of humanity that comes when you see some poor unfortunate afflicted with tuberculosis, that you want to do something for a little while to get them away from where you are and get them somewhere else so somebody else will see their unemessary and tedious suffering and their early demise.

We have a patient coming into the hospital today from one of our good counties where the people in the neighborhood have raised \$100 in order to send this patient to the sanitarium. They waste the hundred dollars. It is a pure waste of money to send a patient out there three or four weeks, unless solely for the purpose of making a diagnosis. Such a person has no place to go after he gets away from the sanitarium. It would be better for the sanitarium and for the public and for him if they had not sent him.

This problem is only going to be solved with sanitarium treatment when the family physician frankly faces the problem and makes it plain to the patient.

I think one of the most interesting things that has been developed in this state, and is being developed in other states where the medical societies are conducting tubercular clinics, is the fact that of the patients who come in for examination at those clinics, 51 per cent had not previously been examined by a physician for tuberculosis at all. That is because we don't make sufficiently painstaking examinations. We have not impressed on the public the fact that we can, and are willing to make sufficiently accurate examinations over a sufficient length of time to establish the diagnosis.

The next fact brought out in these clinics (and you are the gentlemen that bring them out, and after you get the facts I am sure you will face them and help to solve them) is that of the 49 per cent that have been examined by a physician, more than 60 per cent have not been told that they have tuberculosis, even when sputum examinations have shown the bacillus of tuberculosis. Every man here recognizes instantly that that is not square; it is not any more square to do that than it is to make a diagnosis of any other condition and not tell the patient frankly what is the matter with him, what his problem is, and what he has to do as his part in its solution. We must tell our patients, every single one of them, when they have tuberculosis or when they are suspected of having it, that his is a sus-

picious case of tuberculosis; and tell them what that means; it means while it is in the incipient or early stages if they have a home that they can rest in, where they can get fresh air and good food and rest and quiet, in the majority of cases, they will be restored. If they can't do all this at home and are able to pay \$15 a week at the sanitarium, the thing for them to do is to go to the sanitarium and not come back when they feel better, but leave when the doctor in charge of the sanitarium tells them that the disease is arrested. If that was told to them at home before they started, if it was told to the parents before the young men and women come there, Dr. Bates' chief difficulty would be solved.

I don't believe any man in this country is doing more devoted work than he is doing at that sanitarium. Zealous, industrious, careful, painstaking, he makes an impression on everybody who comes in contact with him that he fits exactly into the position. He can make good, he can deliver results for your patients with your co-operation, but he is a stranger to these people and naturally they feel he wants them to stay there so the institution will get the \$15 a week. It is the natural feeling that people have when they are paying for something that the man they are paying wants them to stay as long as possible. You are the only one that can relieve them of that misapprehension, and if you will send them to Colorado or Arizona for somewhere in the neighborhood of \$75 a week, they will get the same treatment exactly but they are further away from their families, they are away from their general environment. Are Kentuckians a peculiar people in that when they are ill they like to be on Kentucky soil? We can get results at that sanitarium just in proportion as we have the co-operation of the family physician. I want to urge the profession to face this problem frankly and help in its solution.

here is one feature of this work in which the profession of Kentucky have done better work than has been done in any other state of the Union; more and better tuberculosis clinics have been held by the County Societies, using Drs. Lock and Bates as consultants, than have been held in any other state in the Union. I want to urge the Counties that have not yet had these clinics that they should arrange to have them at as many points as possible in each county at the earliest possible date. It is worth it to you; it is worth it ten thousand fold to the afflicted people of your County.

Tuberculosis has been decreased in Kentucky since 1910 60 per cent. That decrease has been made by the practitioners and the health organizations of the state, especially through the public health nursing organization. We still have much too high sick and death rates from tu-

berculosis in Kentucky, and we will approach the problem, if we approach it at all, and solve it, if we solve it at all, by the systematic physical examination of children, by careful work in our families in building up the health of babies, in the education of the children while they are in school. Health education is really the most important factor in the whole protection against tuberculosis.

This state never will, at least I hope it never will, embark on a large sanatorium expenditure as has been done, for example, in our sister state of Mississippi where a bond issue of two and a half million dollars built a 250-bed sanitarium which it would cost more than \$1,000,000 a year to adequately maintain. I think it is far better to expend smaller amounts of money and more energy and more brains in public education, so we are building a population that does not have the disease than to continue to take care of increasing numbers that are already ruined by it.

Valuable members of society can be saved by the profession if they will get the patient in the sanitarium with the idea that he is going to stay long enough to get results.

It is a matter that you and I can solve in the families we come in contact with, we, practicing physicians, and we are really 80 per cent of the agency that is going to do with the relief of cases at the sanitarium. The sanitarium is unable to do good when the patient is not in proper time to come in and stay. That is the point we want to keep in our minds firmly. We will then keep the sanitarium filled with the kind of patients that will be relieved instead of sending there those already hopeless and merely staying there until they are ready to be shipped back home. In such cases we are doing worse than useless things.

There is no question but that every general hospital in the United States ought to have a tuberculosis ward for the advanced cases where they can merely be made comfortable.

It is our sanitarium. Every doctor in Kentucky is on its staff in so far as he will be on its staff, and he makes Dr. Bates' work successful just in proportion as he does his duty by the people who come to him who are suspected of this disease.

J. S. Lock, Louisville: I want to speak on the point of waiting for a positive diagnosis by sputum examination. In holding these clinics that have been referred to in the various counties in the state, we are often visited by doctors who bring the patient in and say, "I thought the patient had tuberculosis but I sent a sputum for examination and found it came back negative." They satisfy themselves with one laboratory examination. There is very little satisfaction in one examination because you don't know, unless

you superintend the getting of that specimen, where it came from. Dr. South will tell you that of the specimens sent to the laboratories many of them contain nothing but the saliva, and doctors will write in and say the clinical symptoms point to tuberculosis but they had a negative sputum. Let me urge you to not be satisfied with one negative sputum examination. If you have any symptoms at all that would indicate tuberculosis, send repeated specimens. It doesn't cost you anything. It only costs a postal card to ask for the containers, and we are glad to send them to you, and Dr. South and her laboratory will be glad to make as many examinations as you will send her specimens.

Be very careful on that point and don't dispel from your mind your diagnosis of tuberculosis because you get a negative sputum, one negative report is very indinite.

In referring to these clinics again, may I say that the clinics that are being conducted by Dr. Bates and myself under the auspices and in conjunction with and with the help of the medical profession in the respective counties are available for any county in this state if the profession will ask for them. We will give you one, two, three, four, or five days, or any number of days that you think we can be of service to you in helping you to conduct these clinics. They are your clinics. We are simply helping you and giving you the advantage of Dr. Bates' experience as a specialist in these examinations.

We realize that many of us who are general practitioners are not as accurate in these examinations of the chest as we should be. You have this opportunity without cost to you or the county or the patient who is examined. They are free for the asking, and we hope that every county society in this state will avail themselves of these clinics which we would like to help you carry on.

S. W. Bates, (In closing): I don't think I can add anything to what has been said except to thank the gentlemen for their frank discussions of the paper and to say that this institution is yours as much as it is mine. Your taxes bought it and paid for it, and it is up to you as much as it is to me to make it go. We are offering as good care and treatment as you can get anywhere for your tuberculosis patient. The doors of the institution are open to you at all times. If there is any one here who is interested in the subject or has a patient at home that he thinks might be benefitted by our treatment there, if you will call us up while you are here in the city we will be glad to send a machine in here for you and take you out and show you just exactly what we are doing and what we are trying to do.

FACTORS INFLUENCING THE INCREASE OF CANCER IN KENTUCKY.*

By FRED W. RANKIN, Lexington.

That there are not many local factors in Kentucky which are not incident to the rest of the United States, so far as the increase of cancer goes, seems to me self-evident. That we are one element affected by a general condition appears more nearly the situation. Statistics furnished by the State Board of Health of Kentucky showed that the average age at death in Kentucky in 1900 was 32 years, whereas Kentucky's death rate in 1923 showed an average age of 53. This enormous gain in longevity, of course, brings a far greater number of people into the cancer age. Cancer everywhere follows the march of civilization, increasing now at a rate of approximately 2 1-2 per cent per year. Accurate statistics on primitive peoples are not available, but the assertion is frequently made that they are less affected by malignancy; contrawise it is noted that the vast majority of these peoples died at an earlier decade of life than those frequently affected by cancer. A glance at our State statistics reveals the fact that the death rate from cancer in Kentucky, as recorded by the statisticians, is steadily increasing. Statistics show that the mortality from cancer for the 12 years from 1911 to 1923 recorded definite increase in the percentage death rate per 100,000 population. In 1911 there were 986 deaths; in 1912, 1043; in 1913, 1122 deaths. For the next two years the mortality decreased by a slight percentage, there being 1081 deaths in 1914, and 1090 deaths from cancer in 1915. The following years, however, the percentage increased and the rise continued steadily until 1921 with the single exception of the year 1917 when six-tenths of one per cent decline was noted.

During the past year the deaths from cancer in Kentucky alone numbered 1386, or 57 per cent deaths per 100,000 population. Comparing this with the death rate for the United States in general, which was 80.6 per cent per 100,000 in 1917, we find Kentucky's death rate was 50.5 per cent per 100,000. The general death rate has risen in the United States in the seventeen years between 1900 and 1917 from 62.9 per cent per 100,000 to 80.6 per cent per 100,000, so that it is readily seen that the present death rate from cancer in Kentucky, which is 57 per cent per 100,000, is 5 per cent lower than the general death rate in the whole United States during 1900 and 23 per cent lower than the general death rate from cancer in 1917.

To successfully combat or eradicate a dis-

ease, which takes a toll annually of almost 100,000 in the United States alone, the primary essential is to understand its etiology. Despite the stupendous efforts of investigators the world over, the cause of cancer remains as obscure today as it was fifty years ago. We are constantly concerned with increasing statistical data which lead us into controversy as to whether the death rate in cancer as proven by the death certificates of the different states in the union is apparent or real. For various reasons different statisticians take different views of this controversy, but the majority of investigators are becoming more agreed that the increase is a real one. Certain it is that the death of more people is annually recorded as caused by cancer than was the case in preceding years. It is difficult to estimate precisely the factors which underly this fact. Strong writing in the *Journal of Cancer Research* announces that cancer is not greatly increasing and his position is echoed by a considerable group of intelligent investigators. On the other hand Hoffman in his splendid work, "Mortality Throughout the World," looking at his subject from the impersonal angle of the insurance actuary, argues that there is a true increase in cancer which is not accounted for by improvement in methods of diagnosis or more accurate statistical records. He thinks the cancer mortality figures for divisional periods bear no relation to any other period and places the death rate from cancer among people 45 and over as his evidence that there is a true increase among an equal number of people affected by the statistics.

It is difficult to believe that diagnostic methods have so far supplanted the clinical experience and observation of the last generation of physicians as to account for the rise in the death rate from malignancy. In the ten years from 1903 to 1913 the increase per 100,000 population in the United States was 6.7 per cent; in the year 1921 there were 93,000 deaths in the United States alone from cancer whereas in the preceding year there were only 89,000. Four thousand additional deaths each succeeding year is certainly an alarming increase, regardless of how our diagnostic methods have improved, or our statistical records. The increase facilities for diagnosis and the fact that cancer is being recognized more quickly might explain in small increase, but when figures rise as we see by the thousands it is difficult to accept this view.

We know little or nothing of the etiology of this dread disease but are content to attribute it to three theories to which within the recent months Crile has added his electro-

*Read before the School for County and City Health Officers, Louisville.

chemical conception of life by which he also feels that the occurrence of malignancy may be explained. The three other theories of etiology; the biological, the parasitic, and the metabolic theories all have their advocates, but as yet none have been able to prove beyond peradventure the accuracy of their views. Of pre-disposing causes and hereditary much has been said and little is definitely known.

Much research work has been done on the phase of heredity in cancer and of this the work of Maud Slye stands out prominently. Her methods and conclusions will be valued by any one who is interested in this phase of malignancy.

Of exciting causes, it is generally accepted that the application of chronic irritation to any focus in the body most probably leads to the development of malignancy. Whether carcinoma of the breast develops from chronic septic mastitis or whether carcinoma of the stomach develops upon the base of a gastric ulcer continues to be a question of dispute, but abundant evidence is at hand that chronic irritation plays some part in cancer formation in various portions of the body. Certainly gastric cancer and gastric ulcers bear some relation. Certainly irritation of sores on the lip bear some relation to the development of epithelioma. Certainly the Kangri burns of Kashmir bear some relation to the body wall cancer of that particular locality. Numerous examples might be cited which bear out to a logical conclusion that the relationship between chronic irritation and malignancy is more than a coincidence. The fact also that almost always, or at least not infrequently, we find a cancer existing as a precancerous condition before the actual explosion of active malignancy occurs leads to the belief that the early stages of cancer are always curable, whereas the actual percentage of cures which we are attaining under present conditions is pitifully low.

Cheever recently reviewing all the carcinomas of the stomach seen at the Massachusetts General Hospital in Boston during the past decade found that one-half of these cases were totally inoperable even from the clinical and X-ray standpoint when they presented themselves. Another high percentage of the remaining 50 per cent were found to be inoperable upon exploration, thus cutting the total percentage of favorable cures down greatly because when viewed from the standpoint of the total number of cases it was comparatively small, yet viewed from the standpoint from the cases which were at all operable, it gave ground for more optimism.

Illustrations of this nature multiply in regard to cancer in all parts of the body and

emphasize our duty in the education of the public to not only suspect the symptomology of this disease in its infancy, but to a realization of the knowledge that taken in its early and pre-cancerous stages malignancy is curable in a high percentage of cases. This education of the public, as well as the profession, been the subject of so much discussion that gradually there are being established a certain number of facts concerning malignancy and with this comes the realization that by education as well as increased technical facilities, will we limit its spread.

The American Society for the Control of Cancer is constantly campaigning in behalf of this educational program and beginning in October of this year will institute an extensive campaign throughout the different states of the union which will extend until May. That this great society should have the hearty co-operation not only of the National Society, but of the State Society and County Societies as well, is obvious. Perhaps one of the greatest functions of the Public Health Officer—and in his line of work the responsibility is even greater than any other—is furthering the propaganda against any form of disease. The opportunities, which are at the command of the medical profession through the co-operation of the press, are unlimited. That the education of the public should be carried along two distinct lines seems to be self-evident: first, the public should be placed in possession of all the vital facts concerning the nature of cancer and methods of combating it, and secondly the public should be warned of the many pitfalls which are placed in the path of cancer sufferers through the advertisements of cancer quacks and cancer cures.

The average individual has a very vague idea of the nature of cancer and is inclined to look upon it as some dread disease which is of a mysterious nature and which is not likely to attack him or her personally. The great tendency of people is to put off bringing attention to early symptoms, even provided they know what these early symptoms are, and to hide them either from a sense of false modesty or in the hope that the lesion is of small consequence.

The chief factors that influence the growth and spread of cancer in the human economy are likewise little understood by the public. Little optimism prevails among the laity concerning the cure of cancer and this probably accounts in a large measure for their failure to report earlier for investigation. It is not enough to bring before them such as is commonly known about cancer after they have developed the lesion. This education I believe should begin early in their life, per-

haps even in the high school days of the individual, and should be further supplemented by a routine physical examination at stated intervals at the hands of a competent physician. This seems to me to be the crux of the situation for the control of cancer as we are lamentably in the dark as regards its etiology.

Dr. Childes, President of the British Medical Association, in an article on "Environment and Health" says, "The only things we know about cancer which are worth knowing are its age incidence, its relation to chronic irritation and the fact that in the beginning it is a local disease and that therefore it can be cured by removal in those stages where its removal is possible. We hope it is not only an obligation from the point of view of the public of their own interest and safety, but of vital interest to further the financial means of solution and to see that research is not crippled or stinted by any niggardly parsimony." Further he comments, "Without any resort to any sensationalism some obvious steps could be taken to spread the knowledge of a few very simple facts about cancer. This would give by no means an unwarranted ray of hope to the public and would enable some of the sufferers from this terrible disease to apply in time to have had a chance for cure or freedom from recurrence."

Thus, he puts the responsibility upon the medical profession for the education of the public concerning all vital facts known about cancer and upon the public for its co-operation and assistance with the profession in combating malignancy.

That cancer in its beginning is a local disease and that cancerous lesions exist in a precancerous condition which is curable are two points which cannot be too strongly stressed, I think. Unquestionably, prophylaxis against cancer is largely dependent upon its early recognition and treatment of lesions which subsequently may develop cancer. In recent years there has been a great advance in the matter of personal hygiene and particularly of dental hygiene, which has been brought about at the earnest efforts of the dentist of this country as well as those of many investigators who realize that so many diseases arise from foci of infection in the mouth. This indirectly is bearing fruit in the control of buccal cancer. Few, if any, cancers of the mouth develop in the absence of some local injury to the mucous membrane, which frequently results from bad teeth or some local irritation. Crile is authority for the statement that no cancer of the cheek or mucous membrane of the buccal cavity has ever grown upon an uninjured, unmutated sur-

face, nor has he ever seen a buccal cancer in a perfectly sanitary mouth with normal teeth.

In cancer of the breast we know well that 50 per cent of lumps in the breasts of women over 45 years of age are malignant, and yet how difficult to persuade women with lumps in their breasts to have them examined in a reasonable period. So also the appearance of abnormal discharges in uterine malignancy and the appearance of unexplained symptoms in the gastro-intestinal tract, which are frequently fore-runners of malignancy, should be emphasized. The fact that cancer is not painful in its initial stage must undoubtedly account for the reticence of many sufferers in presenting themselves for examination. Few diseases which do not give pain in their onset force the individual to consult a physician until they are well advanced. Another fact which is significant and which we should not lose sight of, is that cancer is being observed more frequently among young people. Scarcely any institution in the country is without records of people of the decade between 20 and 30 years of age who are under treatment for malignancy. Cancer must no longer be looked upon exclusively as a heritage of old age, because occasionally we find it in people before the second decade and sarcoma has long been recognized as of relatively frequent occurrence in young adults and children. A clinical fact of importance relative to the age question is that the younger the individual the relatively less chance there is of a cure by whatever means it may be attacked.

Presenting to the public all the facts pertaining to cancer and urging upon them the importance of a routine examination, seem to me to be our most obvious duty. Routine physical examination may not be accomplished without certain effort and difficulties, and yet the trend of modern medicine is unquestionably in this direction. Realizing the nature of malignancy and being on the alert for its early symptoms, how often will we discover a precancerous lesion while it is still local and without metastases. Let me emphasize that a careful history taking is as essential in the general physical examination as the actual physical examination itself, and that by this means many internal malignancies will be suspected in time to subject the individual to a more systematic laboratory examination.

The history of malignancy in many portions of the body is so typical, even in the earliest stages, that there is small ground for question. Cancer of the fundus of the uterus for example, presents such a typical history in many cases past the menopause, of a thin watery discharge and spotting that it is pos-

sible to detect this cancer in the vast majority of cases long before it has metastasized. How many cancers of the rectum would be discovered if routine examinations were practiced upon individuals who come in complaining of piles. Undoubtedly the percentage would be high because experience teaches us that probably one-third of the cancers of the colon have been treated and in some instances have been operated upon without the correct diagnosis having been suspected. So it is with lumps in the breast which we are unable to say accurately are malignant or benign. They unquestionably should be the subject of pathologic examination on removal and we might say on sight in women over 40. If a radical operation is done in the first month following the discovery of this lump, we know from Bloodgood's recent statistics that there is a chance of 80 per cent of cures over a period of three years time without recurrence. So it is through the whole history of cancer situated anywhere in the body; early diagnosis and radical treatment cure a high percentage of cases. The earlier the diagnosis, the higher the percentage of cures.

We should take the public into our confidence in this campaign; we should, I think, be constantly emphasizing the facts at our command concerning cancer; concerning its nature; concerning its cure. The public should know all the optimistic data for it is already in possession of the darker side of the question, and it should be educated to the realization that it is only by a co-operation of the public, press, and profession we may combat this obscure disease whose etiology we do not know but whose mortality we believe is on the increase. Co-operation and prompt action are urgent for in no disease is procrastination so harmful and delay so fatal.

The American Proctologic Society will hold a meeting at the Ambassador Hotel, Atlantic City, N. J., May 25-26, 1925. All interested are invited to attend.

Dr. G. E. Vincent, President of the Rockefeller Foundation, addressed the County Health Officers at their recent meeting in Louisville, April 13-17.

The next examination conducted by the American Board of Otolaryngology will be held at the Ambassador Hotel, Atlantic City, on Tuesday, May 26 at 9 A. M.

Application blanks may be obtained from Dr. H. W. Loeb, Secretary, 1402 South Grand Boulevard, St. Louis, Missouri.

RADIOTHERAPY OF TUBERCULAR ADENITIS.*

By Drs. KEITH AND KEITH, Louisville.

The basis of this paper is our personal observation in the treatment of seventy-four cases. The greater portion of these showed involvement of the cervical lymph nodes which is the most frequent location in patients affected with tubercular adenitis. We might easily divide our series into four classes: 1. Early Cases; 2. Late Cases; 3. Post Operative Cases; 4. Cases of Questionable Diagnosis, which could probably be lymphosarcoma or Hodgkins, in which group the number is quite small.

1. In the early cases we have included the acute infections or of very recent involvement in which there is no evidence of fibrosis. The lymph nodes in this type are freely movable and as a rule not very tender.

2. In the late cases we have included the cases that are beginning to suppurate or that have discharging sinuses. If the patient has a cold abscess when first seen the fluid is aspirated or a very small incision is made with a tenotomy knife or some other small instrument and the pus and necrotic material are squeezed out. Occasionally two or three aspirations or incisions may be necessary. Any operative work is done with very gentle hands and with very little pressure for fear of an extension. We do not think the cases with fibrosis and multiple sinuses are contra-indications for the use of roentgen rays or radium.

3. Many of our cases have been post operative in which there were very definite scars occasionally with keloid formation with an extension of the lymph nodes or incomplete removal. These cases have done equally as well though requiring a little longer time than the cases that have had no operative work. Many of these cases have had radical surgery with incomplete removal or extension due to breaking down nature's barrier. In addition to a cure from radiotherapy many of the scars are so thin that they are not noticeable and as a rule we have a patient who is highly pleased to get rid of the lymph node enlargement and an unsightly scar.

4. The cases of uncertain diagnosis are the ones in which the lymph nodes of the neck show very extensive involvement with very large lymph nodes and the question arises if they are Hodgkins disease, lymphatic leukemia, or lymphosarcoma. In these cases a node should be taken out under local anesthesia and sections cut for microscopical study. A Wasserman reaction should be taken if thought necessary.

*Read before the Jefferson County Medical Society.

DIAGNOSIS

In the majority of cases the diagnosis is easily made as it usually occurs in patients under thirty years of age and there are few diseases to exclude, Hodgkins disease, lymphatic leukemia and lymphosarcoma. In cases where the diagnosis is uncertain we excise one lymph node under local anesthesia and rely on the microscope for assistance in diagnosis.

The general accepted theories of infection of tubercular adenitis are that it may be hematogenous or come from involvement of some adjacent structure, usually from the mouth, throat, or tonsils. A great many of the authors divide tuberculosis in children into three stages, the first being lymph node involvement, the second bone involvement, and the third involvement of the lungs. If this be true the lymph nodes are the barriers between some local infection and a systematic infection. If the infection be hematogenous a tubercular lesion would have to be present some distance from the infection. We have had a few cases of bone tuberculosis (Potts disease of the spine or tubercular hip disease) that were arrested by plaster paris jacket and later there was an involvement of both the cervical and inguinal lymph nodes of a tubercular nature.

Tubercular adenitis is not a virulent type of tuberculosis and many cases will recover with constitutional treatment. Ewing and other pathologists state there are a certain percentage that may show tubercular adenitis primarily and later develop into a Hodgkins or lymphatic leukemia. He states that a tubercular lymphadenitis may pass rapidly or after several recurrences into lymphosarcoma. "The rather frequent discovery of tubercle bacilli in lesions supposed to be pure lymphosarcoma suggests that a very slight difference separates some such tumors from the immediate or distant presence of tubercle bacilli or their toxins." ²

One of the great advantages of radiotherapy, in tubercular adenitis is if the lesion should be Hodgkins or lymphosarcoma the best treatment for these conditions is being applied as the patients gain more benefit from radiotherapy than from any other procedure. It is very necessary for a much heavier dose in Hodgkins disease so it is imperative that a positive diagnosis should be made before treatment is outlined.

This paper does not intend to present a new subject but endeavors to present the present accepted treatment of choice by the leading surgeons and radiologists of today. In our experience there is little question that radiotherapy is by far the method of choice. Given an acute case in which no surgery has been

done the mass of lymph nodes will rapidly decrease in size and if they go to suppuration they can either be aspirated or the skin incised with local anesthesia. If you will wait for fluctuation and the abscess to become distinctly localized a tiny incision is all that is necessary and can usually be done without anesthesia with little or no scar formation. As there is no pain accompanying tubercular adenitis after radiotherapy there is no objection to waiting until the necrotic area has become well localized. The cases we have seen treated this way have no scar or tendency to keloid and quite frequently there is no vestige of lymph node enlargement to be felt by palpation or to be seen by inspection of the skin over the affected area. Many of these cases retrogress completely without liquefaction, necrosis, and sinus formation.

LATE CASES

In the late cases with localized abscesses, sinus formation, or very large lymph nodes we have seen them relieved usually in three definite ways. The large lymph nodes may completely retrogress; they may undergo liquefaction necrosis and require aspiration or tiny incisions for drainage, or they may undergo fibrosis even with calcification. If the fibrosis from multiple sinus formation, from incision, or from fibrosis from large glands are uncomfortable or unsightly they may be removed under local anesthesia requiring a very small incision and no resulting scar or keloid. In our experience keloids and unsightly scars do not appear unless radical removal has been practiced. In the cases where some fibrous nodules are all that remain and have been removed, microscopic sections have been made and the microscopical picture consists of scar tissue and presents no sign of active disease.

POST OPERATIVE OR RECURRENT CASES

In this type of case we find very heavy scars with slight tendency to keloid with a few of the smaller glands that have been incompletely removed or have recurred, the lymph nodes quickly retrogress, the scar becomes thin and these cases respond as well as the acute case though require more treatment and longer time for a cure. The x-rays when partially filtered have a very definite effect on fibrous or scar tissue which is of great benefit in lesions of the neck, particularly in the female patients who are very sensitive to any conspicuous or unsightly scars. In addition to bathing the effected lymph nodes with x-ray the scar or keloid is treated with properly filtered radium-rays which is very effective in causing the scar or keloid to retrogress.

Patients that have had radical operations with recurrence later or an involvement on

the opposite side or both should be subjected to radiation before any further surgery. In this type of case it requires a great deal more radiation for a cure although it can be effected in cases of this type.

We know of no objections to treating any of the above cases with radium except the cost of material and the time required. Very few of us have enough radium to bathe the entire cervical area as can be done with x-ray. The few cases we have treated with radium alone show equally as good results as the cases treated with x-ray alone or with the combination of x-ray and radium. For economical and practical purposes we believe the combination of x-ray to bathe all of the affected glands and the use of radium immediately over the scar or keloid is the practical method of treatment.

CASES OF QUESTIONABLE DIAGNOSIS

In cases in which the glands are enlarged with fixation to the tissues beneath and occasionally to the skin, there being such a large number that it is possible a lymphosarcoma or Hodgkins disease may present, radiotherapy is the method of choice though it is best to give a dose which is larger than the dose for tubercular adenitis. The necessary dosage may require definite tanning of the skin.

TECHNIC

In the technic we have used the voltage has ranged from eighty to one hundred and twenty kilo volts with filtration of from two to eight millimeters of aluminum, depending entirely on the size and depth of the lymph node enlargement. We have had very few cases in which even the slightest tanning was present.

In none of the early cases or cases in which an absolute diagnosis or tubercular adenitis was made has any tanning been present. In some of the old cases with multiple sinus formation and hard fibrous masses where it has been necessary to treat over a long period of time there has been slight tanning of the skin which has disappeared in a few weeks time after treatment was abandoned.

In cases of questionable diagnosis which were treated as cases of lymphosarcoma or Hodgkins disease there has been very definite tanning as the dosage is decidedly heavier. Even in these cases the tanning and dryness of the skin have been so slight there has been no great objection on the part of the patient.

DISADVANTAGES OF SURGERY

1. In children many get well without any treatment except medical.

2. There is no certain method of diagno-

sis.

3. It is impossible to remove all of the affected glands and the only barrier between the original lesion and the general system is broken. Rapid extension may follow radical surgery on account of breaking down nature's barrier as well as lowering the resistance of the patient for a few days.

4. Scars are objectional, particularly in the female if the lesion be in the region of the neck. Quite often the scars are painful and accompanied with keloid formation.

5. Recurrence frequently occurs if no post operative radiation is given.

6. Spreading of the infection is quite possible as we cannot be sure that the infection is distinctly localized.

7. Nodules when enlarged may be Hodgkins or sarcoma in which surgery is contra-indicated as complete removal is impossible.

8. Enlarged tonsils in which the cervical chain of glands show enlargement should be given radiation before the tonsils are removed.

ADVANTAGES OF RADIOTHERAPY

It has been proven by many of the large clinics in which as many as a thousand cases have been treated that more than ninety per cent are cured without surgery. The five or ten per cent that are not cured are included in the class that require aspiration or incision for drainage and the removal of fibrous nodules. It is known that x-ray destroys adenoid tissue and leaves only the stroma occasionally accompanied with calcium deposit which is known to occur in recurring cases, which is nature's method of cure. Microscopical examination of the small hard fibrous masses reveals a central cheesy mass surrounded by hard fibrous tissue and very rarely if ever any tubercular bacilli are found either in the secretion or the fibrous mass.

We would insist on the early treatment by radiotherapy as the best method of treatment at present. If the patient is not seen until the glands are very large and are probably becoming caseous radiotherapy should be applied and surgery used if indicated later. In the cases that have numerous sinuses that have failed to respond to injections a great many of this type will be cured, or if all the hard fibrous masses are not atrophied they can be easily removed by surgery, usually under local anesthesia, through a very small incision. In our experience surgery is contra-indicated except for incision of degenerated glands and the removal of hard fibrous masses as sequelae as the hard fibrous nodules following radiotherapy hardly ever occur and when they do it is rare that tubercular bacilli are contained in them.

In the very large cervical glands a malignancy may be present which is best treated by radiotherapy. We feel at the present the future treatment by the more systematic raying will be the method of treatment accepted and very few cases will be submitted to surgery.

A history of four cases of the types referred to above will be illustrative of results that may be obtained.

Case 1. Miss W. Age twenty, came to us eight years ago with the following history.

Two years previously an operation had been performed for enlarged tubercular glands of the right side of the neck. Six or eight months later there was a recurrence with an involvement of the chain on the opposite side. They were removed followed by extensive scar on the left side and very large scar with keloid formation on the right side. Six or eight months later there was a recurrence of the glands on both sides of the neck with an involvement of the submental chain of lymph nodes. The largest one of these appeared as if it would break down as the skin over it was red, decidedly tender and showing slight edema. The submental was an acute involvement.

Treatment was applied to both sides of the neck and the glands beneath the chin with the head extended. There was a rapid retrogression of all the glands with such marked diminution in the scar and keloids from former operations that in a few months they were scarcely noticeable. The glands beneath the chin did not degenerate and required no incision. The redness quickly subsided and returned to normal appearance.

This patient also had an involvement of the lungs prior to this time and had spent sixteen or eighteen months at Saranac.

She has remained well and free from recurrence for a period of eight years, during which time she has done very hard work as a pupil nurse, a graduate nurse having served as a superintendent of a small general hospital for the past three years. She has been seen this year in the past three months and is free from any palpable nodules in the cervical or submental area. The scars are thin and not noticeable as they are very near the same color as the surrounding skin.

Case 2. Mr. L. K. First seen in March 1919, five years ago. Had an acute tubercular adenitis of both sides of the neck and operative procedure had been planned. On the morning of the operation the patient was so exceedingly nervous, temperature 101, and pulse 150 that his surgeon decided that operation would probably be hazardous as there was probably some involvement of the lungs.

He suggested the patient taking two or three series of roentgen therapy and later the enlarged glands could be removed if they did not disappear.

This man received in all three series of x-ray about two weeks apart and then one exposure over each side for the next four months, once monthly. He was rather slow in recovering though recovery was complete. We see him quite frequently. There has been no recurrence.

In this type of case there is little doubt in our mind that had his operation been performed an extension would have been very probable with a light-up of his chest infection due to the lowered resistance accompanying radical surgery. There is no skin tanning, skin atrophy, skin dryness or fibrosis that can be seen or palpated.

Case. 3 Master J. Age eight years. Referred to us a few months ago with enlarged glands of the neck, supra and infraclavicular and axilla of the right side. It was questionable if it was not one of those rare malignant cases seen in children, either lymphosarcoma or lymphatic leukemia.

He received one series of x-ray over a period of a week's time and about two weeks later one of the nodules became so localized and liquified a small incision was made and drainage established. The gland healed within a week's time and at present no scar is perceptible. The redness at the site of this necrosis has entirely disappeared. The boy has regained his former weight and appears to be in excellent health having resumed his school. In children if there is complete regression from one series no further treatment is given. We have never noted any disturbance of bone growth in children from x-ray therapy though three to five series may have been given. The interval between series in children is longer than in the adult cases.

Case 4. Mr. S C. Age twenty-eight. Weight two hundred pounds.

Patient had enlargement of the glands of the neck for a period of four or five months. Referred to us with a diagnosis of Hodgkins disease. The enlarged glands were quite large, very deep and hard to palpate on account of the enormous amount of fat present.

We concurred in the diagnosis and agreed that radiotherapy was the best treatment. Much to our surprise following his second series a small spot appeared on the skin being decidedly tender and red. In a few days the tenderness disappeared, the redness increased and within a period of eight or ten days there was a definite point of fluctuation which was opened by tiny incision

and drained for a few days. Healing was very prompt and to date the man has had no recurrence although the involvement was very extensive.

In this case moderate tanning of the skin is present. There is no scar at sight of incision for drainage.

REFERENCES

1. Ewing, *Neoplastic Diseases*, page 360-361.
2. Ewing, *Neoplastic Diseases*, page 241.

OFFICIAL ANNOUNCEMENTS

PROCEEDINGS OF THE EYE, EAR, NOSE AND THROAT SECTION

The meeting of the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association at its Seventy-fourth Annual Convention, at Louisville, September 22-25, 1924, was held at the Seelbach Hotel. The first session was called to order at 10:00 a.m., Monday, September 22nd, by the President of the Section, W. B. McClure, Lexington.

The reading of the minutes of the previous meetings at Crab Orchard, September, 1924, was dispensed with upon motion of C. T. Wolfe, of Louisville, regularly seconded and carried.

The following new members were elected:

W. R. Cundiff, Somerset
 W. P. Drake, Bowling Green
 Jas. P. Edmonds, Middlesboro
 C. N. Heisel, Covington
 S. B. Marks, Lexington
 C. H. Johnson, Paducah
 E. S. Melvain, Cynthia
 Hugh H. Richeson, Lexington
 F. Carleton Thomas, Lexington
 T. A. Wash, Harrodsburg

The question of representation of the section on the program of the Kentucky State Medical Association was discussed, and the following motion made, seconded and carried: That the Section have a minimum representation of two members, one an eye man, and one an ear, nose and throat man, each year, with the suggestion that one out-of-state man be given a place.

The following officers of the Section were elected:

President, Robert Walter Bledsoe, Covington

Vice-President, D. M. Griffith, Owensboro
 Treasurer, I. A. Lederman, Louisville
 Secretary, Gaylord C. Hall, Louisville
 Councilor to succeed D. M. Griffith, W. B. McClure of Lexington.

Under new business the question of the manner of selecting members for the state

program was discussed, and on motion of Octavus Dulaney, Louisville, regularly seconded and carried, this was left to the Program Committee.

A motion was made by D. M. Griffith, seconded and carried, that the Section meet at some time during the meeting of the Kentucky State Medical Association, and not on the day (usually Monday) preceding the state meeting.

The essays presented were:

Case Report. Intra-ocular Melanosarcoma, by Robert Walter Bledsoe, of Covington. Discussed by E. P. Calhoun, Atlanta, J. A. Stucky, Lexington, A. O. Pfingst, Louisville, S. G. Dabney, Louisville, J. G. Carpenter, Stanford, J. D. Williams, Ashland. Discussion closed by the essayist.

Case Report. Tendon Transplantation of Eye Muscles, by J. H. Hester, Louisville.

Sinus Thrombosis, by C. T. Wolfe, Louisville. Discussion by S. G. Dabney, Louisville, Robert Walter Bledsoe, Covington, Octavus Dulaney, Louisville, and Shelton Watkins, Louisville.

Concerning Certain Contra-indications for Cataract Extraction, by F. Phinizy Calhoun, Atlanta, Ga., together with the report of a fatality.

The Use of Milk Subcutaneously in Eye Infections, by R. H. Cowley, of Berea.

The discussion on the essays by Wolfe, Calhoun, and Cowley, was deferred to the evening session following the banquet.

The session adjourned at 12:45 p.m.

EVENING SESSION

At the close of the dinner Dr. McClure, the president, called the Section to order.

Dr. Calhoun, our guest, who had to leave to catch his train, in a few appropriate words expressed his appreciation for the hospitality he had received and extended a cordial invitation to the members of the Section to be with him when the Southern Medical Society met at Atlanta.

The President then called for a discussion of Dr. Wolfe's paper on Sinus Thrombosis.

J. A. Stucky, of Lexington, commends the paper for the full and complete report of the case. He thought Dr. Wolfe was wise in waiting as he did since most of us are too easy on the trigger and operate at once. High temperature alone does not necessarily mean Sinus Thrombosis but the blood count means a great deal.

D. M. Griffith of Owensboro, advises ligating jugular vein below the clot. He has had very little experience in blood transfusions.

The President next called for discussions of Dr. Cowley's paper.

J. A. Stucky stated that he had used the

milk injections and thought some cases obtained very excellent results. He inquired of the essayist if he had ever used Aolin.

Leon Solomon stated that he had had no experience with milk but has used Aolin. He was much impressed with the literature on the subject. He found that Aolin produced no reactions and could be used either intramuscularly or subcutaneously. He thought it was safer than milk injections. He had used it in a variety of infections with happy results.

Jos. Heitger thought that the Leucocytic extract was better than the milk injections and produced much less reaction.

R. H. Cowley in closing thanked the members for the discussion and stated that in his opinion the milk injection was of distinct advantage in certain eye infections.

The next paper on the program was "Trachoma," by L. P. Mulloy of Paducah.

The discussion was opened by D. M. Griffith of Owensboro, who called attention to the wonderful results to be obtained in the treatment of this disease; called attention to the prevalence of trachoma in the Kentucky mountains and praised the work of Dr. Stucky in that region. He commended the use of Prince's method in the local treatment of the disease due to a vitamin deficiency; talks later and applied to the eye several times of these cases, namely, the 10 per cent solution of copper in glycerine, properly used.

J. A. Stucky stated that his views were undergoing a change in regard to trachoma. He felt that he didn't know as much about it as he thought he did ten years ago. He considered it not as contagious nor infectious as he once thought. He had treated cases of intraocular injury in cases suffering from old trachoma without an infection of the wound following. He thinks it rather a dietetic or deficiency disease. Thinks the cases are caused or distinctly aggravated by improper diet. The cases in the mountains have no milk, butter or eggs in their diet. When these children are put on a well balanced diet with simple cleanliness they get better. To get curative results after grattage cases should be fed properly. He thought they might return to school with simple cleanliness and diet. Such cases as had done this caused no outbreak of the disease. He thought we were but on the threshold of knowledge of this disease.

R. H. Cowley of Berea, stated that he had had many cases of chronic trachoma in school. As long as the school authorities fed the children as they had been previously fed in their homes the eyes did not improve; after having altered the diet, as suggested by Dr. Stucky, the cases became well. He considers

the disease due to a vitamin deficiency; things it similar to tuberculosis and pellagra.

C. T. Wolfe of Louisville, spoke with reference to the diagnosis to distinguish trachoma from folliculosis, spring catarrh, refractive errors, purulent conjunctivitis. In treatment he stated Kirkpatrick uses the silver salts together with magnesium sulphate from 10 per cent to a saturated solution. In Heisrat's operation he uses the ballooning of the fornix with normal saline, thus giving a line of demarcation with the tarsal plate. He puts in a central suture and one on each side.

S. B. Marks, of Lexington, stated he had helped Dr. Stucky in his work and thought he achieved brilliant results. He saw much trachoma among the West Indian negroes. He uses grattage in treatment and reported a family of small children where early operation was successful.

A. O. Pfingst of Louisville, thinks Dr. Stucky's change of view a good omen since it shows that men are thinking about the cause of the condition. He considers it a typical infectious disease, local to the eye and thinks the operative work has done a great good. He believes of course that people have a varying degree of susceptibility to the trouble.

L. P. Molloy, in closing, thanked the members for the discussion. He thought that he could cure cases at first by sending them to the country where they would get the benefit of fresh air, abundant food, etc., but later found that the worse cases came from the country.

Octavus Dulaney, of Louisville, read a paper entitled the Choice of Anesthesia in Tonsillectomy.

Dr. Johnson, of the Anatomical Department of the University of Louisville, discussed the anatomical relationship of the tonsils, their nerve and blood supply.

R. W. Bledsoe, of Covington, thanked the essayist for the paper. He prefers ether on account of the deaths before operation in cases where a local anesthetic was administered. He asked the essayist if he had had any accidents from local anesthesia either from the anesthetic or hemorrhage following. One can operate bad heart cases under ether. He gives the patient choice of anesthetic.

C. E. Purell, of Paducah, formerly preferred local anesthesia. He now thinks some cases cannot be anesthetized locally. There is an element of fear and patient suffers mentally though operation be painless. He quoted list Dr. Loeb, of St. Louis, had compiled of deaths under local anesthesia. He thinks Nitrous Oxide safest and quoted work done in Crile's clinic. He thought hemostatic

tatic agents predisposed to hemorrhage. At the close of his remarks he demonstrated an appliance for use with the Sluder instrument as a lever to cut off all tissues.

Hayes Davis, of Louisville, discussed the paper from the standpoint of the internist. Prefers general anesthesia in children, local in adults except in special cases. He related a case of tonsillectomy with local anesthesia in patient with heart lesion; there was secondary hemorrhage, profound shock, dilatation of heart and death.

Dr. Johnson extolled local anesthesia and referred to his own case.

Wm. T. Bruner of Louisville, prefers local anesthesia in patients he can control. He referred to the occurrence of abscess of the lung following general anesthesia. In nervous patients he uses a bandage over the eyes, so they may not see the instruments. He thinks secondary hemorrhage more common after local anesthesia.

D. M. Griffith, of Owensboro, in local work uses weakest solution that will anesthetize with very little adrenalin added. Wants patient to bleed at time of operation if he bleeds at all. He often operates heart cases under ether and prefers general anesthesia. Thinks drop method of administration safest.

A. L. Bass, of Louisville, prefers local anesthesia in adults and older cases. He supplements his anesthetic with morphine and hyoscine at times. He believes patient stands operation better if given food two hours before.

S. S. Watkins, of Louisville, believes in giving patient preference in anesthetics. He thinks fatalities under local anesthesia due to carelessness, as for instance injection through a blood vessel, novocain being non-toxic in tissue but very toxic in the blood stream. He believes majority of pulmonary complications come from the operation performed in the neighborhood of vagus. Thinks some inhalation cases may occur, therefore the operator should keep throat free from blood.

Jos. Heitger, of Louisville, thinks men who can do the work equally well prefer local anesthesia. He uses morphine sulphate with 25 per cent solution of C. P. magnesium sulphate subcutaneously before operation.

Leon Solomon, of Louisville, thinks the toxicity from local anesthetics very small as compared with the toxicity following general anesthesia. Thinks danger greater under general anesthesia both immediate and remote. Believes that local anesthetic is possible even in children.

C. C. Maupin, of Louisville, thinks selection of anesthetic should be left to the patient. Believes all cases should be in the hospital. Believes anesthetist should be skilled

and the amount of anesthetic held to the minimum. He prefers to give no medication before local anesthesia.

R. H. Cowley, of Berea, discussed the possibility of accidents from local anesthetic. Detailed case where 4 per cent cocaine was injected instead of novocain. Another where alcohol was injected by mistake. Thinks operator should attend to this matter personally and be certain of solution injected.

O. Dulaney, in closing, thanked the members for the discussion. He stated that he was undecided as to which method was preferable. He used general anesthesia at first and was now trying out local. He thought there was more after hemorrhage from local. He believes adenoids can be removed successfully under local.

In painting tonsils he uses a 25 per cent solution of the 3 1-2 per cent solution of iodine. He gives food before local anesthetic; uses novocaine for injection up to 2 per cent but believes even sterile water would also anesthetize.

There being no further business to come before the section a motion to adjourn was made and carried.

GAYLORD C. HALL.
Secretary.

Treatment of Epilepsy.—Juarros declares that there is no symptom of any kind that stamps a convulsion as true epilepsy; he restricts the term to seizures on a basis of a characteristic mental state. All others are reflex pseudo-epilepsy, and when it is possible to discover and eliminate the primary condition starting the reflex, we may obtain surprising cures of apparently invertebrate epilepsy. He cites instances of recovery after removal of a turbinate bone or adenoids, reducing glycosuria in a diabetic, modifying the congested liver, dropping tobacco, or regulating digestive functions. Reduction of intake of salt has improved many cases even without sedatives, but he usually gives bromide or phenobarbital with this and a predominantly milk-vegetable diet, insisting on a quiet mode of life, free from care but not idle. In 343 cases treated with bromide (5 to 10 gm.) no effect was apparent in 29, and the mental condition was not modified in any instance, but in 2 the seizures did not recur and in 125 the seizures were reduced by 50 per cent; in 97 they were reduced, but to a lesser extent. In 214 cases treated by 0.10 to 0.30 gm. of phenobarbital, the seizures did not return, after dropping the drug, in 35 and in 120 they did not recur when the drug was kept up. In 40 cases the seizures were reduced by more than 50 per cent and there were only two cases in which no effect was apparent.

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NEXT ANNUAL MEETING—OWENSBORO, 1925

COUNTY SOCIETY REPORTS

Campbell-Kenton: The regular semi-monthly meeting of this society was held at the Industrial Club, Covington, Kentucky, December 4.

The following officers were elected for the ensuing year:

President, S. P. Garrison, Bellevue, Ky.; Vice-President, J. D. Northcutt, Covington, Ky.; Secretary, L. C. Nafer, Ludlow, Ky.; Treasurer, R. Lee Bird, Sr., Covington, Ky.; Board of Censor, 1 member, D. S. Bonar, Newport; Delegates, R. Lee Bird, Sr., Covington; J. G. Furnish, Covington; F. A. Stine, Newport; C. W. Shaw, Alexandria.

Following a lengthy debate on the subject the following resolution was adopted:

"This Society go on record as opposing any further payments into the State Medical Defense fund."

J. H. HOHNSTEDT,
Secretary.

Franklin: The Franklin County Medical Society met in regular monthly session Thursday April 2, at 12 Noon at Capital Hotel.

The president Dr. R. B. Gunn being absent, Dr. Darnell presided and there was present Drs. Yonmans, Stewart, Coleman, Minish, Darnell, Patterson, Budd, Garrett, Heilman and Mastin.

Minutes read and approved. Report of committee made. Report of Committee composed of Drs. Patterson, Garrett, and Budd to arrange a schedule of fees for fractures, first aid; schedule was approved and the secretary was instructed to have cards printed with the list of fees for first aid in fracture cases so that each physician could have two to hang in offices.

Clinical cases discussed; dinner following business meeting. Adjourned to meet first Thursday in May.

F. W. MASTIN,
Secretary.

Pendleton: The Pendleton County Medical Society met at the Citizen's Bank Building March 12 at 7 P. M., with the following members present: H. C. Clark, O. W. Brown, J. E. Wilson, F. T. Peddieord, W. A. McKenney and B. N. Cower. Roll call.

Minutes of last meeting read and approved.

H. C. Clark read a paper on Focal Infection, which was very interesting and instructive, and was discussed by the members present.

O. W. Brown reported a very interesting case of Posterior Pharyngeal Abscess. The meeting adjourned until our next regular monthly meeting on the second Thursday in April at 7:00 P. M.

B. N. COWER,
Secretary.

Boyd: The Boyd County Medical Society enjoyed a luncheon program, at the Blue-Bird Tea

Room, Tuesday evening, March 10. H. J. Hillman read a paper on Tuberculosis. This was a very interesting manuscript and was thoroughly enjoyed by the members of the society. A. J. Bryson read a paper on Colonic Anesthesia and gave case reports. This refreshed our minds as to the possibilities of a less common method of producing anesthesia.

LESLIE H. WINANS,
Secretary.

Bourbon: The Bourbon County Medical Society held its regular monthly meeting on Thursday February 19, 1925 at 8:00 P. M. at the Community Building.

The following members were present:

Drs. L. R. Henry, J. A. Orr, W. C. Ussery, H. M. Boxley, and M. J. Stern. Drs. W. M. Brown, R. J. Estill and W. N. Lipsecomb of Lexington, were present as invited guests. Frank Strickler, Louisville, E. F. Horine and E. F. Herzer, also of Louisville, were present as invited guests-essayists of the evening.

Frank Strickler read a most interesting paper on "Surgery in Birth Injuries to the Nervous System."

E. F. Horine read a splendid paper on "Discussion and Treatment of Cardiac Irregularities."

E. F. Herger read a paper that was greatly appreciated, entitled "Non-Surgical Consideration of Gastric and Duodenal Ulcer."

These papers were liberally discussed and many valuable points brought out.

The meeting adjourned.

MILTON J. STERN
Secretary.

Carlisle: The Carlisle County Medical Society met in J. F. Dunn's office on March 3, with the following members present: Drs. G. W. Payne, H. T. Crouch, T. J. Marshall, and W. L. Mosby, of Bardwell; H. A. Gilliam of Milburn; W. Z. Jackson, R. T. Hoeker, and J. F. Dunn, of Arlington; also the following visitors: Drs. Chas. Hunt and W. F. Peebles, of Clinton; Thos Wayne, of Columbus; and Dr. Francis Rothert, of Louisville.

The president, Dr. D. S. Robertson, being absent our vice-president, Dr. R. T. Hoeker, presided. After prayer by Dr. Hoeker and approval of the minutes the Scientific program was taken up.

By motion the visiting Doctors were given welcome seats in our meeting and asked to take part in the discussions.

The first on program was a symposium on rectal diseases as follows:

Constipation, H. T. Crouch; Hemorrhoids, H. A. Gilliam; Proctitis, W. L. Mosby.

The papers were read and the discussions taken up jointly. A lengthy and hearty discussion by all the Doctors present followed, being closed by the three essayists.

The Society adjourned to Hotel Victor where a bountiful feast was spread. After which the society reassembled and Dr. G. W. Payne read his paper, "Some Frequent Causes of Gastro-Intestinal Disorders." This was also a very fine paper and was discussed by most all present, Dr. Payne closing the discussion.

H. A. Gilliam invited the Society to meet with him in June in an all-day session.

A telegram from R. C. Burrow, who is spending the winter in Florida, wishing the society an enjoyable as well as a profitable meeting, was read.

There being no further business the society adjourned to meet again on the first Tuesday in June with Dr. H. A. Gilliam.

J. F. DUNN,
Secretary.

Perry: The Perry County Medical Society has arranged the following program for May 11, at the offices of Dr. Gross and Collins:

W. H. Gingles—"Medical Ethics." Discussion by G. D. Ison, Blackey.

Taylor Hurst—A paper on "Summer Diarrhoea." Discussion by H. Hensley, Napfor.

June 8, 7:30 P. M.—Ladies' Night and Banquet at Hotel.

Paper on "Infant Feeding"—Dr. Z. M. Ab-shear, Lothair.

Paper—"The Doctor's Wife"—By Mrs. J. A. Neblett.

Paper "The Ladies" Dr. J. E. Ray.

J. P. BOGGS,
Secretary.

BOOK REVIEW

LECTURES ON ENDOCRINOLOGY. By Walter Timme, M. D. Attending Neurologist, Neurological Institute, New York; Professor of Endocrinology, Broad Street Hospital; Professor of Nervous and Mental Diseases, Polyclinic Medical School and Hospital. With twenty-seven illustrations. Paul B. Hoeber, Inc. Publishers, New York. Price \$1.50.

FERTILITY AND STERILITY IN HUMAN MARRIAGES. By Edward Reynolds, M. D., Boston, Mass., and Donald Macomber, M. D., Boston, Mass. With a section on the Determining Causes of Male Sterility, by Edward L. Young, Jr., M. D., Boston, Mass. Octavo volume of 285 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$5.00 net.



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For children and adults follow the same method in the proportion of one-half teaspoonful of gelatine to a glass of milk.

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KENTUCKY MEDICAL JOURNAL



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No. 6

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EDITORIAL

THE OWENSBORO MEETING

Dr. Woodard, the President-Elect, and Dr. Henry are working hard on the program for the Owensboro meeting. The Editor has had the privilege of a peep at it and it is evident that they are preparing a real post-graduate course for this session that every physician in Kentucky will want to hear and see.

The Owensboro Arrangements Committee, of which Dr. R. E. Griffin is chairman, is already at work. The new hotel is practically completed. Write to Dr. Griffin for your reservations. Three of the most successful meetings in the history of the Association have been held in Owensboro. The fourth will be the greatest of them all.

AN INTERESTING LETTER.

The following letter to the Editor is interesting:

"In the April Journal I note the editorial 'Was this Written from your County?' " No.

"I would not like that Health Officer's situation. I have been County Health Officer for many years. I have never established a quarantine for any disease without reporting immediately to the other members of the County Board of Health, because I knew a quarantine was not legal unless the Board approved it. At the same time I reported to the County Judge and County Attorney, because their approval is essential for any cost of quarantine. The court has always paid the expense gladly because they understood it at the time service was being rendered. The other physicians of the County have always approved the quarantine because all of them who had anything to do with any particular case were consulted. A Health Officer's most important duty is to be absolutely fair with his fellow-doctors. He cannot succeed in the life-saving work without the confidence of his fellow-practitioners that he is dealing fairly with them and that he is honest with the people. He must not use his office to the advantage of any doctor, especially himself. He is a public servant and

must act like one.

"The members of the profession should back up the Health Officer and it is essential that they report diseases to him and get his official support in protecting the people.

"The members of the profession in any county must stand together for the public welfare. When one doctor knocks another it hurts the knocker worse and also injures the health of the people, because it lessens their confidence in the profession. Why not all stand together and be real doctors?"

This inspiring letter should be read by every member of the profession.

A NEW BOOK ON BACTERIOLOGY.

The editor has just recently received the eighth edition of a very interesting volume on bacteriology entitled "Pathogenic Organisms," a practical manual for students, physicians, and health officers, written by Dr. W. H. Park, of the Laboratories of the Department of Health, New York City and his co-workers, Anna Williams and Charles Krumwiede.

This edition has been used as a textbook in the School for Laboratory Technician's conducted by the State Board of Health and we take pleasure in recommending it not only to those actively engaged in laboratory work but to the practicing physician as a reference book. It is published by Lea and Febiger, Philadelphia, and costs six dollars and fifty cents. To comprehend to recent advances in bacteriology the physician must know how to collect a proper specimen and how to interpret the laboratory findings, and should include in his library a book on bacteriology that can be given him this information in an understandable and attractive manner, which this volume will do.

ORIGINAL ARTICLES

PREVENTIVE MEDICINE IN RELATION TO THE CHILD*

By ANNIE S. VEECH, Louisville.

I wish to speak to you as a group whose task in life is that of ministering to those human beings afflicted with disease or the results of injury to the human body. I would, for a short time, beg that I may lead you away from the condition with which you are accustomed to deal, into the field of preventive medicine and its relation to the child. If it were not for just such men as you—men who have become heartsick with everlasting dealing with pathological conditions and their affect on mankind, having become convinced of wastefulness and often the folly of permitting such conditions to prevail—we would have had no work in preventive medicine. A great impetus was given to the movement in preventive medicine, especially that part which is related to child health, by the discovery during our great war that one out of every three of the boys in the draft was physically unfit for service.

For many years certain lines of preventive work have been done, which not only affected adults but children. These were: improvement in sanitation, improvement in safe water, milk and food supply, the control of smallpox by vaccination, the control of typhoid by vaccination and water supply, the control of malaria and yellow fever by draining and oiling stagnant pools—infants and young children suffering more from the effects of malaria than adults.

About the years of 1908-1909 two movements were launched in this country by those interested in child health, which have been productive of much good for the health of our nation. One was physical inspection in schools and the other was establishment of infant health centers. Health inspection in schools is not a physical examination of the child. It is only an inspection—it covers what may be seen by anyone, namely: the physician, the public health nurse or even the teacher. This inspection includes looking for the presence of a satisfactory vaccination scar, the scalp for pediculosis, the eyes for external inflammatory conditions or strabismus and the Snellen test for vision, the ears for discharge or inability to repeat a spoken sentence—whispered at twenty feet, the mouth for decayed or unkept teeth, the throat for "sore" or large tonsils, the skin for skin eruptions and the whole body for posture. Weighing the child is the best guide to nutrition, and this is done regularly in the best

schools. In many schools, upon request from the parent, the Schick test is made and children immunized with toxin anti-toxin. Many are also immunized against typhoid fever and smallpox. The necessity of correction for defects is stressed and the importance of practicing right health habits is taught. The child learns what neglect of all this may mean in permanent injury to his heart, lungs and kidneys. Health education in the schools has been fostered by the State and National Tuberculosis Associations—Since long ago, have they realized prevention is worth more than cure.

The first infant health centers were established at Johns Hopkins in Baltimore, and soon after,—our own in Louisville came into existence. The need for these centers will be fully understood when it is remembered that in the United States our annual loss is over 150,000 infants. Last year the ten centers in Louisville had under their care one fifth of the infants born in the city. Their infant deathrate (that is of the babies under one year) was 17 per 1,000. In most large cities the infant death rate is from 75 to 85 per 1,000 births. This splendid result in Louisville has come about through the wise and splendid services of the physicians in charge of this work and the follow-up work of public health nurses. Inasmuch as a child is a growing organism, growth or gain in weight is the best index of his maintained health. In these centers health teaching is the most important phase of what the physician imparts to the mother—He teaches the value of periodic weighing and of regularity in all of the child's habits. He makes the mother understand the value of sunlight, fresh air and quiet. He gives to her a routine for herself, that she may produce sufficient quantity of the best breast milk for her child. And if it is necessary to supplement the breast milk he knows the simple whole milk formula and the time to start giving other foods.

One of the more recent movements has been that which is known as that for "the pre-school child" or "the runabout"—the child from two to six. While in childhood the first year has been known as the age of the greatest mortality, the pre-school age is the age of the greatest morbidity. It is the age in which we lose the most of our children from infectious diseases or their sequelae, the toll of whopping cough and its sequelae and of measles and its sequelae, being each over ten thousand deaths among children in the second and third years annually. Besides this, many who survive carry the effects of its complications through life. It is known that a pre-school child has a better chance

*Read before the Jefferson County Medical Society.

for life if the infectious diseases of childhood can be avoided until he is older, and so his mother is instructed. Mothers have not known until recently the importance of the proper food for the child of this age, and so he has been expected to thrive on the food only fit for adults; nor did she know the need of the daily rest period and long hours of rest at night with the windows open, or the harm of over fatigue and overmental stimulation and lack of quiet—all of which play an active part in producing the malnourished child. The child in the Farm Club knows more about the rules of producing the physically perfect pig or calf than do some of our parents know about the child. It is in this period that the child often loses his six year molar, the keystone of the jaw, because the parent does not know it is a permanent tooth.

We have been dealing so far with the influence of preventive medicine upon the infant, the pre-school and the school child; and now we go even a step in advance of each of these, because our experience has taught us that we must begin before the child is born to influence his environment in his prenatal life. We must know whether his parents have venereal infection, and have them treated if necessary. The prospective mother must be under the careful supervision of her physician getting intensive anti-syphilitic treatment if she is infected, not only for her own good but the good of her unborn child,—his mental, nervous and general health is influenced largely by the taint of inherited tues. Her physician makes careful pelvic measurements, so he will have an understanding of what sort of a birth canal this parent has. Frequent, periodic taking of blood pressure gives him a line on accumulated toxins often weeks before examination of the urine will indicate it. Care instituted to overcome such toxemias and their resultant eclampsias, and the possible loss of the child, also lessens the chance of the child too being toxic. Since the interesting experiments at Hopkins and elsewhere have shown us that the food of the prospective mother not only affects the possibility of her having offspring, but also the kind of offspring she has, great stress is laid on her food. Inasmuch as the "baby teeth" and the six year molar are formed before the baby is born—and their quality depends on the food of the mother—therefore she is taught just the kind of food she must take, so that she may build a perfect child and also save her own body. Her food, her rest and her exercise are all planned for her. Physicians find most mothers co-operative—for are they not the builders of the nation? McCullum of Hopkins says, "The

basis of everything in life lies in physical vigor. Scientific nutrition has great value in raising the vitality of mankind—it is of far reaching importance in preventive medicine." In Kentucky we are attempting to produce physically fit children by broadcasting up-to-date health teaching.

THE EYES, EARS, NOSES AND THROATS OF 433 BABIES*

By CHAS. K. BECK, Louisville.

For The Babies' Health Contest of The Kentucky State Fair, 1923, it was my privilege to examine in the eye, ear, nose and throat department most of the 433 babies produced. While this examination was rather superficial it suggests some facts which to my mind are valuable to the medical profession in general and the family physician in particular.

Most of the parents of these children have consulted or will consult their family physician about the defects found. There is no compensation to the members of the profession who render these services except to the chief examiner. Our services are otherwise rendered *gratis* in the hope that the attention of parents may be directed toward correctable defects and pathological conditions existing in their children and will consult their medical advisers concerning them.

Probably most of us are familiar with the "Standard Score Card for Babies" issued by the American Medical Association. It was this card that was used. The following is the result secured from the 433 babies who were three years of age and under.

Eyes—abnormal size, 1; abnormal position, 2; crossed, 1; disease of conjunctiva, 7; discharge, 0; abnormal sight, 0; abnormal lids, 3, eczema, 2.

Ears—abnormal size, 2; abnormal position, 3; abnormal shape, 1; discharge, 2; abnormal hearing, 0; cerumen, 2.

Nose—stenosis, 0; discharge, 17.

Throat—tonsils enlarged, 258; tonsils diseased, 144; adenoids, 80. Seventy-eight, or approximately 18%, were marked perfect in this department.

This is a selected group of children. In nearly every instance the child was presented by a fond parent who hoped and firmly believed his or her child superior to any other child in the world, and most of these parents were disappointed when their idol failed to get a ribbon. Parents of weaklings and abnormal children did not produce them for this contest. Hence these statistics cannot be taken as a general average of children of like age, and it is not for that purpose that I present them.

No special tests for sight or hearing were

*Read before the Jefferson County Medical Society,

made. One can easily comprehend how difficult such testing would be with such large numbers. Each child could hear and understand conversational tones and vision was good enough to see pictures on the wall.

It is remarkable how few of these children presented defects that were detectable by the ordinary casual inspection of the layman. There was only one case of strabismus. The mother was perfectly aware of the presence of the defect but was seeking free advice. Needless to say she was advised to consult her family physician.

The fact that this one case of strabismus came opens the door for some discussion of this rather common ocular defect. Since strabismus is almost always correctable to me it is a pitiable sight. Cosmetically it is jarring on many esthetic and sensitive natures. One has a creepy feeling in the uncertainty as to whether the individual is looking at one or at someone else. The patient himself must know how much his appearance is marred. It is no wonder then that most of these patients seek relief from the deformity, when they have reached the age when they become sensitive about appearance.

But deformity is really the least of their troubles. There is a cause for this deformity which if removed early enough will not only usually prevent it but give the child that which it is impossible for it to possess, if removed too late, i.e., binocular vision. It is not very pleasant for a person with only one useful eye to contemplate the possibilities of future years with regard to that eye. If he had two eyes and one should be injured he would still have one left; but with only one, and it less protected than if there were two because of loss of its fellow, he is already half blind and more than half likely to become totally so.

Binocular vision depends upon the development and proper functioning of the fusion faculty. The development of this faculty begins as early as the sixth month of life and is completed usually by the sixth year. In other words, if strabismus is allowed to exist until after the sixth year binocular vision is impossible as a rule. The patient may be able to see with both eyes; one may be used for near vision and the other for distance; but he always suppresses the vision in one. Neither correction of his error of refraction, operation, nor any other treatment will give him binocular vision. He has lost the opportunity for possession binocular vision because he has waited until too late. Therefore these cases should receive early attention.

Parents frequently inform us that they have been advised to allow the child to "out-grow" the strabismus; sometimes they say

this advice has been given them by their family physician. In such cases the error of refraction is nearly always very great, and, while spontaneous cure is possible, it is a very rare exception and is no argument in favor of allowing patients with squint to "trust to luck." They should all be carefully examined and treated according to scientific principles.

In order to understand the subject thoroughly it is necessary to discuss the mechanism of squint production. Accommodation is the power of altering the focus of the eye so that divergent rays are brought to a focus on the retina. This is brought about by means of an increase of the convexity of the lens, thus increasing its refractive power. The amount of accommodation varies with every distance of the object. Contraction of the pupil occurs synchronously with accommodation.

With a certain amount of accommodation a corresponding effort of convergence of the visual lines is associated. It will be seen therefore that accommodation, contraction of the pupil and convergence, must be accurately balanced for proper results. If more accommodation than normal is required because of an error of refraction the internal recti will hypertrophy and one eye will turn inward too far. If little or no accommodation is required (as in myopia) the internal recti will atrophy and one eye will turn outward. Understanding this mechanism the remedy is easily determined. The error of refraction must be corrected in early life. "To determine the absolute error of refraction it becomes necessary to examine the eyes while under the influence of a strong cycloplegic" and "I cannot refrain from emphasizing this point and of impressing the importance of not entrusting cases of squint to the optician who is incapable of determining accurately the amount of ametropia."

Only two discharging ears were found. When we recall the fact that no prominent life insurance company will accept an applicant who is afflicted with either continuous or intermittent otorrhea we cannot help realizing that otorrhea is a much more serious condition than is generally supposed. Recurrent attacks, acute exacerbations, mastoiditis, sinus thrombosis, septicemia, labyrinthitis, meningitis, brain abscess and other conditions are possible results. Chronic suppurative otitis media is not a trivial or unimportant disease. Its curability is somewhat in proportion to its chronicity. The longer it continues the greater the pathological changes in the tympanic cavity and the less the likelihood of restoration of normal hearing.

In certain cases abnormal position, shape

or size of ears may be corrected both to improve function and appearance. The two with cerumen should be looked after.

Seventeen, or approximately 4 per cent, exhibited discharge from the nose. This was usually associated with adenoids. The remedy where this is the case is obvious. But where there are no obstructing adenoids and there is a purulent discharge the nose should be thoroughly examined. Rhinitis is serious. Sinusitis, meningitis, optic neuritis, optic atrophy, atrophic rhinitis and other conditions may follow a neglected rhinitis. It may be a symptom of some general condition, such as diabetes mellitus or scorbutus.

About 60 per cent had enlarged and one third diseased tonsils. In my humble opinion there are only two indications for tonsillectomy, viz: disease and functional obstruction. All of the diseased tonsils should be removed now or within the next two or three years, depending on the amount of disease, the condition and age of the patient, and the clinical symptoms. Tonsils that are producing definitely toxic symptoms should be removed no matter what the age. In the absence of definite signs of infection, malignancy, obstruction to respiration, deglutition, hearing or speech, enlargement of the tonsils is not an indication for their removal.

I am opposed to indiscriminate tonsillectomy. It is my opinion that normal tonsils have a function to perform. What that function is has, I believe, never been positively decided. Some observers have thought they influence development of the child. Some have claimed that there is an internal secretion, and that they belong to the group that presides over the metabolism of sugar. But if there is no function I would still be opposed to the removal of tonsils that are not definitely diseased or obstructive; because, first, I do not believe in subjecting an individual to an operative procedure of any nature whatever unless it is clearly indicated; and, second, because despite the care that may be exercised in tonsillectomy there is frequently scarring of the pillars. In this day when each operator is endeavoring to be more speedy than his neighbor in performing tonsillectomy, the operation is not always done with the care it deserves. Consequently sometimes whole pillars are removed with the tonsil and the patient is crippled for life. Usually there is so little scar that no bad results follow; but it may be bad enough to modify voice and speech, interfere with deglutition, or produce deafness. A few months ago I saw one patient with stricture of the pharynx. The condition of some of these unfortunates is far worse than before the tonsils were removed. To my mind what we should strive for is not

brevity of operation but absence of sequelae because of due care exercised no matter what may be the time required.

Many of the tonsils that were enlarged were also diseased, i. e., infected. Whenever there is a semicircle of hyperemia of the anterior pillar that is rather dark showing venous stasis there is chronic infection of the tonsil. In acute infections the color is lighter and more diffuse frequently spreading over the entire fauces. Where there is no infection the color of the pillars is the same as the rest of the mouth and pharynx. The tonsils in these cases were not acutely infected. The infection was chronic and of a character from which there is seldom such a thing as recovery while the tonsils remain *in situ*. In all of that 33 1-3 per cent where there were infected tonsils the tonsils should be removed; but most of those cases where the tonsils were simply hypertrophic without infection should not be operated. I believe that the enlargement is usually pathologic and often a first step toward infection if it does not already exist. In such cases I have secured good results especially in children from internal medication.

Eighty, or 18 1-2 per cent, were found to have obstructing adenoids. They, of course, should be removed at an early date. Obstructing adenoids were not always associated with infected tonsils though the tonsils were hypertrophic.

Therefore, all squints should be under the care of an oculist from babyhood; all discharging ears should be treated until cured; diseased or obstructive tonsils and obstructive adenoids should be removed; and discharging noses in children should not be neglected.

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DISCUSSIONS.

Phillip F. Barbour, Louisville: I regret that I did not arrive in time to hear Dr. Veech's paper, but am sure what she said will be very valuable to everyone. She is doing an immense amount of work for the state of Kentucky, and I do not believe she is getting the glory, praise or credit for it that she so richly deserves. Any one doing any real health work in the state of Kentucky must understand that it is like virtue, the reward is in the work itself. I think we should talk more about the character of the work that is being done throughout the state and also in Louisville for the benefit of the people, because they do not realize the unselfish efforts of doctors to make them healthier. I am familiar with the work that is being done by Dr. Veech and she is deserving of great credit for it.

Referring to Dr. Beck's paper: The question of the tonsils and whether they are diseased and

whether they should be removed, is one that I have to consider many times every day, and I have evolved certain rules that guide me in my advice as to the necessity of an operation. I do not believe the size of the tonsil has very much to do with the question of its removal. In many instances the tonsils are considerably enlarged and protrude into the throat so they can be easily seen, and yet there is no infection, consequently no absorption, and such tonsils are not a source of danger to the child. On the other hand there are many tonsils that can be seen only with great difficulty that are the site of serious infections and cause rheumatism, organic heart disease and other lesions in the child. These have often been overlooked simply because the tonsils were of the so-called buried type.

I think the best way to determine the amount of toxicity for which the tonsils are responsible is to watch the character and size of the glands in the cervical region that drain the tonsils. If infection of any severity exists in the tonsil the glands that drain the tonsil will show some evidence of it. Where the tonsil is simply enlarged without being infected and "milks itself" every time the child swallows, such a tonsil is rarely the source of any serious danger to the child. However, if the tonsil is enlarged and the cervical glands—sometimes also those under the sterno-cleido-mastoid muscle—are involved, then tonsillectomy is indicated, even if there is no obvious trouble on the surface or in the appearance of the tonsil.

Octavus Dulaney, Louisville: Dr. Veech deserves great credit for her splendid paper and the statistics presented. Her statement is surprising that 65 per cent of the mortality rate in children is during the first month of life. This certainly represents a terrible state of affairs and ought to be corrected.

In 1911 I read a paper before the Tennessee State Medical Association along lines somewhat similar to those mentioned by Dr. Veech. The idea was to try and educate the public in sanitation and sanitary measures with special reference to the schools of the state. We advocated the early education and training of children to regulate their habits from the standpoint of health, the necessity of healthful living surroundings, etc. Very little was done, however, to put the plans advocated into actual operation. We may make definite recommendations for instance in regard to a school building, but under ordinary circumstances little is accomplished. The plans and specifications are handled by some politician who is absolutely ignorant of the laws of ventilation, light, heating and other features which are important in a school building. The only way to correct the matter would be to have the State Board of Health and State Board of Education approve all plans and specifications for school buildings before the work is com-

menced. In that way the construction could be made to meet the necessary requirements. All school buildings should be so located as to admit light from the north and south. The ordinary layman does not understand the importance of that feature. Probably few school buildings throughout the state are constructed in the proper manner and the children are handicapped in consequence.

As to the examination of school children: In the rural districts this is sometimes a different problem to handle. Many people, especially in the country, rebel against the idea of having their children vaccinated; they oppose the idea of having a doctor examine their children. The only way to avoid trouble is to call the examination merely a physical inspection, and the teachers can be taught to make this inspection and detect abnormalities requiring attention of the physician. The people do not object to this method of procedure.

In the rural districts as a rule, teachers are required to make the inspections and report to parents that children have visual or other defects and should be referred to their physician for attention. In cities where they have health boards and city school inspectors it is quite a different proposition.

Referring to Dr. Beck's paper: I am like Dr. Barbour, I do not believe in universal tonsillectomy. Many children have enlarged tonsils that are not diseased; moreover, the tonsils of children three to five years old are naturally larger relatively than at any other period of life, such tonsils are not necessarily diseased. Another feature that makes the tonsils look unusually large is their superficial location at that age. I would go further and say I do not believe the first time the cervical gland becomes enlarged from a diseased tonsil that tonsillectomy is indicated. The tonsil may be acutely inflamed without becoming a surgical condition. However, when there are repeated attacks with enlargement of the cervical glands we know the tonsil is septic or at least badly infected and should be removed regardless of the age of the patient.

Adenoids are not necessarily pathological and operation is not indicated unless there is obstruction to breathing. The size of the adenoid, like the size of the tonsil, is unimportant so long as infection or destruction is not present. For instance, one child may have very large adenoids without symptoms, while another with small adenoids may exhibit serious symptoms. Any tonsil or adenoid causing symptoms should be removed regardless of age. The question is often asked by parents at what age should tonsils and adenoids be removed? Whenever the tonsils are definitely diseased, and whenever adenoids cause symptoms, their removal is indicated in the interest of the child.

Gaylord C. Hall, Louisville: Something has been said about visual tests in children: I cannot speak with any degree of authority concerning Dr. Veech's work because I am not engaged in that particular line. There is, however, a tremendous amount of work in preventive medicine to be done, and it is true there are few physicians who are either so situated or who have the time and interest to devote to this, so some of this work has to be delegated to interested lay people. While it is necessary at the present time, as a general proposition I do not believe it is wise to entrust the examination of children to laymen; they do not get the proper light on things in general. For instance, in the visual test, there is no greater fallacy in the world than that normal vision means a normal eye especially in children. Those diseases of the eye, those refraction errors, that are productive of the greatest referred symptoms, are the errors which give normal vision in childhood. I refer particularly to hypermetropic conditions, such as hypermetropic astigmatism, etc., with nervousness, headaches, and many other referred symptoms, may exist where visual tests without a cycloplegic discloses 20-20 vision.

Many of you will recall that when the state passed a law granting optometrists the right to examine the eye, I violently opposed it. I still oppose it, and think it is a step backward. I do not believe any good will ever come of it. Some of you may have seen in a recent issue of a daily paper the picture of a boy who had been "cured" of strabismus by one of these optometrists. As Dr. Beck rightly said these cases should be treated as early as possible. An eye that squints is one that ought to be treated immediately regardless of the age of the child. Much may sometimes be accomplished by the application of glasses, and it is surprising how young one may apply glasses on these children and how well they wear them. If they are too young for glasses, however, other methods must be used. The eye can be trained by atropinizing the good eye and in that way save many eyes that otherwise would be lost. Any man who is not capable of examining the eye under a cycloplegic and carefully estimating the degree of refraction error, is not capable of making any kind of an examination of the eye and never will be. Proper results can only be obtained under the use of a cycloplegic. As a general proposition, so far as preventive medicine is concerned, all external diseases of the eye are contagious. There may be some exceptions to this but I do not recall any. A child with external disease of the eye is capable of transmitting that disease to another child, and should be kept from school and under treatment.

With reference to tonsils and adenoids: I thing the decision whether tonsils and adenoids

should be removed or not will never rest on any single symptom. We must carefully examine the patient, determine the extent of infection and degree of toxicity, we must weight all the obtainable evidence. Dr. Beck mentioned an important point in connection with infected tonsils, i.e., the persistence of an undue redness of the anterior pillars as compared with the mucosa of other parts of the throat and mouth. The statement made by Dr. Barbour about enlarged cervical lymph glands is also important. In addition to that we must consider whether the child has any general symptoms, has it had acute attacks of tonsillitis, is its nutrition below par, with no other reasonable explanation for it? I would not say just because a tonsil was enlarged that it should not be removed. I think that might under certain circumstances present a very good reason for its removal.

In regard to adenoids: If the child has any symptoms whatsoever caused by the presence of adenoids, they should be removed not only on account of the question of nasal breathing but because of the danger of infection of the mid-ear few years is that continued obstruction of enlarged tonsils and adenoids induces nasal sinus disease in children. Many of the disappointing results from tonsils and adenoid operations in children are due to the fact that they have, in addition to the infected tonsils and adenoids, infected nasal accessory sinuses, thus prolonging the disability and the sinus disease itself sometimes constituting a very serious condition. I would, therefore, advocate the removal of adenoids promptly under any conditions, on account of the obstruction to breathing, the danger of middle ear infection, and the danger of infection of the nasal accessory sinuses.

James W. Bruce, Louisville: I regret that it was impossible for me to reach here in time to hear the two papers read. Of course, we have height, weight and age tables which give us the weight a child should be at a certain height and certain age. However, it is not purely a mathematical question, it takes more than this to determine whether the child is malnourished or not. Because a child is a few pounds under weight according to the table does not necessarily mean that it is mal-nourished. However, if we find as much as ten per cent under weight, it usually means that the child has some physical defect or that mal-nutrition is sufficient to require attention. If the child is under weight a thorough physical examination should be made to determine if possible the cause. However, in many cases we cannot find anything the matter with the child, and we then have to study carefully the question of diet. It is surprising how many children suffer discomfort because of faulty diet. One of the most common faults is that the child does not eat enough breakfast. School children especially have to hurry away from

home in the morning and have no time to eat breakfast, and often get nothing to eat until one thirty or two o'clock in the afternoon. Some of them get a glass of milk or sandwich in the meantime. The child simply cannot maintain the proper weight under such circumstances. Some children are kept in school until two-thirty or three o'clock. Such long school hours are incompatible with proper nutrition.

Under-nourished children complain of being tired all the time; with the long school hours they do not get enough rest; they go to school at eight thirty in the morning and remain until one-thirty or sometimes three o'clock in the afternoon and it is impossible for them to get sufficient rest. After reaching home and getting something to eat if such children are made to recline for an hour or so that takes practically all their time, and besides under-nourished children ought to spend a greater amount of time out of doors in the fresh air. I believe children would do much better in school if the hours were reduced and they could have more time for rest and recreation.

Another thing which works to the disadvantage of school children is that they take music or dancing lessons in the afternoon after returning from school. They are over-worked as well as under-nourished. The nervous system of the child cannot withstand such treatment. After being in school all day children ought to be allowed ample time for play and recreation in the afternoon.

If no physical defect can be found to account for mal-nutrition in children, by considering the points I have mentioned the cause of the under weight will usually be found.

Annie S. Veech, (In closing): I very much appreciate the intelligent discussion of my paper. I feel if we are to accomplish anything in preventive medical work for children, that we must all work together along modern methods for child conservation. Its success will largely depend on how well you and I educate the public.

Physical inspection of children in schools is a big task, and it has its problems. Few communities realize the need of a paid physician to do this work. Only the larger cities over the United States have school physicians—rural communities must depend on volunteer service. When a child is found to have a physical defect he is referred to his physician for advice and supervision. Kentucky has a law requiring teachers to make the Snellen test for vision on every child, and this is done in many places. Of course, many children, even when this is done, do not get the right care, because most rural communities cannot afford oculists or laryngologists—but, when possible, every means is used to have the child reach the proper help. The medical profession is a wonderful calling in ad-

ministering to the sick, but it has not reached its highest possibilities until it has taught the folly and wastefulness of preventable sickness and the ways of its prevention.

Chas. K. Beck, (In closing): In regard to enlarged tonsils: I thought I made it plain in my paper that I did not regard tonsils that are simply enlarged as being necessarily diseased. In the series covered by my paper in about half the cases the tonsils were enlarged but in only one third were the tonsils definitely diseased. It has been shown by Wright that when the molar teeth are erupted there is a physiological enlargement of the tonsils, and after the teeth are fully erupted the tonsils return to their normal size. This does not mean that the tonsils are diseased or even inflamed. The tonsillar enlargement may be due to increase in the blood supply with consequent increase in nourishment in that region due to eruption of the teeth. This applies to the molar teeth only. These eruptions occur at the ages of approximately two, six, twelve and seventeen years.

As stated in the paper the card we used in making the examinations is one that has been in use for a number of years and in some respects is obsolete. However, all the questions on the card have to be answered in one way or another.

As to the eye: I would like to emphasize what Dr. Hall has said about examination of the eyes. All external diseases of the eye are dangerous—or nearly all of them. They should be promptly treated especially in children to prevent infection of other members of the family, or if the child is going to school to prevent infection of other children. In the case of squint the patient should be constantly under the care of someone capable of applying the proper treatment. Only in that way can the deformity be overcome and the error of refraction corrected. The cases of squint observed in childhood are, in a larger percentage of instances due to errors of refraction, and these errors are usually very great; but they are usually correctable, and for that reason also they should be looked after very carefully.

Meningococcus Meningitis.—The vascular communication with the ear in very young children explains the frequency of meningitis in connection with otitis. The otitis is often metastasis of meningococcemia. With headache, vomiting and fever, followed by signs indicating muscular hypertonicity (Kernig, etc.) lumbar puncture is imperative, and serotherapy should be continued with large doses until the meningococci have definitely disappeared. The spinal fluid may show 3 gm. of albumin and 54 cells per cubic millimeter, as in one convalescent recently, but this alone does not call for continuation of the antiserum.

IRITIS*

By JESSE H. SIMPSON, Louisville.

Having recently heard Dr. Pfingst's excellent paper,—read before this society,—on the pupil of the eye, I thought it might be of interest to review the diseases of that anatomic body which forms the pupil, namely, the iris.

It may be well worth the time to first describe briefly the anatomy of this body, because when diseased there are two well known changes which take place, first a change in the design, and second a change in the color.

Macroscopically the iris is a muscular and membranous structure extending from the anterior surface of the ciliary body forward over the crystalline lens, ending in a ring which forms the pupil, and upon contraction or dilatation of the pupil it glides over the anterior portion of the lens capsule.

The root of the iris is further posterior, because of the convexity of the lens, its ciliary border being separated from the lens by a space designated as the posterior chamber.

There are several layers, namely, the anterior endothelium, anterior boundary layer, vascular stroma layer, posterior boundary layer and pigment layer composed of outer layer or anterior layer of pigmented spindle cells, and posterior or inner layer of pigmented polygonal cells.

The stroma consists of numerous blood vessels, enclosed in thick adventitia, which run in a radial direction from the ciliary to the pupillary margin and are surrounded by a loose meshwork of branched and segmented cells.

A flat band of smooth muscular fibers lies near the posterior surface and in close proximity to the pupillary border. This muscular band is known as the constrictor pupillæ or sphincter muscle.

On the anterior surface is a dense layer of cells, termed the anterior endothelium, and lying next to this an homogeneous layer, both of which have crypts or openings leading into the interior of the iris tissue, thus placing its spaces in direct contact with the anterior chamber and its contents and thereby allowing rapid change in volume.

The posterior limiting membrane contains very even tense fibers, radial in direction from ciliary to pupillary border, and is designated as the dilator pupillæ. As no muscular fibers have been demonstrated here its tissue probably acts by elastic traction.

The color of the iris is determined by the amount of pigment. Except in albinos the so-called retinal layer abounds in pigment,

while that of the stroma varies, giving the blue or gray irides in contrast to the brown or hazel.

The etiology of iritis may be classified under two headings: (a) primary, and (b) secondary. The primary causes may be again divided in two distinct classes, (a) iritis due to some general disease, and (b) that occurring as a local affection.

Of iritis developing in consequence of general disease, there is first and most important that from syphilis which usually occurs in the acquired type, is generally noted in the secondary stage, and always predisposes to exudation and synechia. There may be present characteristic nodules (syphilitic papulosa). Iritis not infrequently occurs in congenital syphilis. Personally I have seen two or three such cases which clarified the clouded etiology of certain visual defects that I had hitherto been unable to explain.

Iritis rheumatica of the literature of even quite recent years, has, I think, become universally accepted to be iritis from an infective focus in the teeth, tonsils, gall bladder, sinuses, colon, or elsewhere throughout the width and breadth of this human frame of ours where foci may have their hiding places.

The iritis associated with gonorrhea is usually seen in connection with other complications, such as arthritis or cardiac involvement, but by no means is this the case always. There is in this form of iritis, as also in the so-called rheumatic variety, less tendency to synechia than in the syphilitic type. It is found mostly in males and has a tendency to recur.

Iritis serofulo seen in childhood and youth, according to a statement of Fuchs, resembles the iritis of syphilis, but is often marked by lardaceous-looking deposits or exudative masses.

Tuberculous iritis is characterized by small gray transparent nodules, or a solitary tubercle, the disseminated type attacking both irides, while the solitary tubercle attacks one.

Iritis may be due to certain infectious diseases, such as malaria and other recurrent fevers, small pox, etc. In Fuch's classification of iritic types he classes the metabolic variety as arising from arthritic urica, arthritis deformans, and diabetes.

Iritis primarily as a local condition necessarily follows either in the eye affected directly by trauma, or by a sympathetic involvement of the other eye. The traumatic causes are: perforating wounds of the globe, especially when a foreign body is left in the eye; cataract operations where extraction of the lens is accomplished with difficulty, or an amount of lenticular substance is left in

*Read before the Louisville Medico-Chirurgical Society.

the anterior chamber. The latter should really be classified under secondary iritis, or introduced infection from without upon the instrument or foreign body.

Secondary iritis also occurs by the transference of infection or inflammation from neighboring tissues, such as ulcer of the cornea, deep forms of scleritis, luxation of the lens, though this last type should come under the heading of trauma: detachment of the retina is also associated with iritic involvement.

Irons and Brown (Trans. Amer. Ophthal. Society, 1918) reported their studies as to the etiology of iritis in one hundred cases. They attributed twenty-three cases to syphilis. In eleven others syphilis was present, though not the attributable cause, on account of the remoteness of the infection. The gonococcus was the causative factor in seven cases, and was noted in two others, making a total of nine. Tuberculosis was responsible in eight cases. Dental infections caused seven, and was noted in eleven others, making a total of eighteen. Tonsillar infection was the cause in seven and was present in nine others or a total of sixteen. Sinus infection caused one case and was found in two others making a total of three. Genito-urinary infection one case; non-venereal three; other infections two; no cause found in one; combined infections seventeen.

The same authors have recently reported (Journal of the A. M. A., November 24th, 1923) upon a second series of one hundred cases of iritis studied in like manner. The causative factor was tonsillar infection in thirty-seven cases; combined infections twenty-four; syphilis fifteen cases. Tonsillar infection was a more frequent cause in this series than in the first. Dental infections were common, but the authors believe alveolar abscess is secondary to tonsillar infection. This increases the number of cases due to tonsillar involvement. There were fifteen cases of sinus infection, but in only one was this the cause of iritis. In no instance was tuberculosis regarded as the cause, although in eight there were evidence of this disease. There were three cases of non-venereal prostatitis. The work of Irons and Moody demonstrates a new avenue of infection, namely, the mucosa of the nose, throat, and intestine. In about 65 per cent of the cases there was more than one source of infection. Attention is called to the fact that following removal of infected tissue there may be steady improvement and ultimate recovery without recurrence of iritis. In other cases removal of such tissue is followed by a more striking and sudden improvement within twenty-four to forty-eight hours. This may be permanent

or followed shortly by recurrence.

Leiche (Amer. Jour. of Surg., May, 1919) records a curious case in which iritis was apparently due to an infected molar tooth. The patient had a severe attack of iritis and neuralgia of left side of face, head, neck and shoulder, persisting three weeks. Treatment sodium salicylate, atropine in eye,—two injections of strepto-staphylococcus vaccine. Seven months later another attack after exposure to cold. No history of lues, two Wassermann tests negative. Roentgenogram revealed an impacted third molar upper left arch; extraction refused. Six months afterward third attack. The second and third molars then removed under infiltration anesthesia. Within twelve hours the iritis subsided, and the neuralgia disappeared a week later; no recurrence.

Mills (Arch. Ophthal., 1923) describes four cases of chronic iritis due to non-dysenteric amebic intestinal infection with a history of constipation. In two cases the iritis subsided under administration of ipecac by mouth and hypodermatically. Because diarrhea was absent the possibility of parasitic infection had been overlooked.

The symptoms of iritis can be attributed partly to increased blood supply and exudation. The hyperemia is manifested chiefly by discoloration of the iris. In blue or gray irides there is a greenish appearance compared with the well eye. In darker colored irides this is not so noticeable, but can be demonstrated with a magnifying glass or slit lamp as separate detached blood vessels in the form of red striæ or maculæ.

Other changes noted concern the pupil, which is contracted and does not react normally. While in the very early stages the pupil is found sluggish in reaction and yet fairly well dilated, the contraction nevertheless progresses as the vessels become more congested and the irritation causes spasm of the sphincter.

The hyperemia is associated with ciliary injection, photophobia and increased lacrimal excretion. Exudation occurs in the iritis tissue making the iris appear swollen and thicker than usual, the clear-cut marking upon the anterior surface thereby becoming obscured. When this process continues we have the manifestation of first a turbidity of the aqueous. Gradually there is swelling of some of the cells and there appears in front of the iris and at the periphery of the lower anterior portion of the anterior chamber the so-called hypopyon. Should there be rupture of any of the vessels there is added extravasation of blood and the so-called hyphemia.

There are also at times seen in the course of

this disease deposits of exudate upon the posterior portion of the cornea which give the appearance to that body of a uniform cloudiness, as well as distribution of the exudative deposits upon the anterior surface of the lens. If this exudate becomes organized a membrane is produced terminating in occlusion of the pupil.

In chronic cases a special variety of precipitate is found upon the posterior surface of the cornea in the form of small dots, usually in triangular formation, with base downward. If the deposits be large they are usually scattered over the posterior surface of the cornea.

It is needless for me to impress upon you the seriousness of this disease, nor how essential is early diagnosis, especially in the syphilitic type. And this more or less academic recital of facts will have served its purpose if it directs attention in your routine work to the slightly red eye with photophobia and increased lachrymation and a rather sluggish though not entirely contracted pupil.

DISCUSSION.

Adolph O. Pfingst, Louisville: When one considers the microscopic anatomy of the iris it can readily be understood why iritic infection frequently occurs. The iris is made up of a fine areolar tissue and has an abundant blood supply; in fact the entire uveal tract including the iris consists largely of a network of blood vessels and some fluffy connective tissues containing pigment cells.

The pathology of iritic disease may be explained on the basis of its structure and the infiltration of the structures with lymphoid cells and leucocytes. In iritic infection there is discoloration and increased excretion. The nature of the infection and the severity of the inflammation determine the type of iritis, which is indicated by the nature of the exudate. The most common form is the plastic iritis the one in which a plastic material is thrown out. Where the deposit is abundant and forms a visible mass in the anterior chamber its known as a spongy iritis. In severe inflammations the exudate become purulent and at times hemorrhagic—the pus or blood being visible in the anterior chamber and constituting what is known as hypopyon.

When I began the study of ophthalmology iritis was usually divided into three varieties, based upon the etiology, viz., syphilitic, rheumatic, and idiopathic. We now know that the term idiopathic means nothing and is used merely to conceal our ignorance. The idiopathic iritis of the older authors was considered primary and the cause was unknown. There are the cases that are now attributed to a focus of infection elsewhere in the body.

Present etiologic and pathologic knowledge indicates that iritis is practically always secondary. It may be secondary to a local inflammation in neighboring structures, such as the cornea, sclera and more especially the uveal tract. Inflammation of the ciliary body or the choroid frequently extends to the iris. I feel convinced that on account of the intimate connection between the parts of the uveal tract, there is always more or less involvement of the entire uveal tract (uveitis) in all cases of iritis. A suppurative corneal ulcer is often associated with a purulent iritis. It was formerly believed that the pus in these cases gravitated from the iris into the anterior chamber. It is now conceded in such cases that the pus does not find its way into the anterior chamber from the ulcer itself but that it is a product of iritic inflammation.

Iritis is also frequently secondary to constitutional conditions.

Of the diseases in which iritis develops, syphilis is entitled to first place. However, considering the large number of people who have syphilis the percentage of iritis is very small. Probably not more than two per cent of syphilitics have iritis, yet from thirty to fifty per cent of cases of iritis are syphilitic in origin.

We have always believed that iritis is like typhoid fever, in that it must run its course, that the attack seldom terminates under six weeks. Later evidence is convincing that this is not altogether so. In iritis due to syphilis, for instance, a cure is obtained in a shorter time. With modern methods of diagnosing and treating syphilis the individual with iritis is given anti-lent treatment and the iritis subsides promptly.

The period when iritis appears in syphilis forms an interesting clinical study. In most cases iritis occurs early in the third stage or six to twelve months after the secondary eruption. Not infrequently, however, it is noted during the secondary eruption and it is then not only severe but usually bilateral. I now have under observation a patient in the florid stage of syphilitic eruption who has severe bilateral iritis. Gumata are not frequently seen—they are not very distinct but may be readily observed on the surface of the iris and may even cause destruction of tissue and disturbance of vision.

As to focal infections: I have seen many cases of iritis that I am sure could be attributed to focal infection. In some of these cases the iritis subsided promptly when the causative factor was located and removed. I have seen iritis disappear promptly a few days after the removal of an apical abscess of a tooth.

The cases of iritis which we attribute to focal infection seem relatively to be increasing, whereas those attributed to syphilis are decreasing.

S. G. Dabney, Louisville: Iritis is generally accompanied by inflammation of other portions

of the eye. When involvement of the ciliary body is serious there are two symptoms to warn the observer, one is extreme tenderness in the ciliary region, the other swelling of the upper eyelid. Neither of these is apt to occur when the iris alone is affected. When the ciliary body is involved the prognosis becomes less favorable. Iridocyclitis is much more serious than when the disease is confined, or nearly confined, to the iris alone.

I was especially interested in Dr. Simpson's remarks concerning plastic iritis, that form in which exudate is deposited, and if untreated and the pupil undilated adhesions are formed to the crystalline lens, the so-called posterior synechia. Such adhesions are usually separated by early atropine treatment, but if for some time untreated the synechia may be permanent and the whole posterior surface of the iris become adherent to the crystalline lens. When that happens the nutrient fluid cannot pass between iris and lens and then escape at the irido-corneal angle, as it should do, and glaucoma develops. This complication can be avoided in the vast majority of cases by dilating the pupil with atropine.

As to serous iritis: We have recently changed the name—and I think wisely—and now call this form uveitis. It is a far more serious affection than iritis. I do not believe it is nearly as often due to syphilis as to focal infection, although the latter is sometimes difficult to locate. The attack often begins without pain, or pain is very slight, deposits of exudate occur like spots on the lower surface of the cornea; these deposits are caused by inflammation of the ciliary body and choroid; they are accompanied by a cloudy vitreous. This is the so-called serous iritis now designated as uveitis because it involves the whole uveal tract. The etiology in a few cases seems to be tuberculous.

As to glaucoma accompanying iritis when there is not a closed pupil: A man of fifty was referred to me two weeks ago who had been treated for iritis, and plainly he began with that disease, but when I saw him he had acute glaucoma. In people over fifty it seems safer to dilate the pupil with homatropine for a few days at least, because the effect of this agent may be quickly overcome with eserine, whereas atropine will not. Fortunately his vision which when I saw him was 20-200, was after eserine treatment brought to 20-20. I mention this as a matter of some importance in the treatment of iritis. We know that syphilitic iritis generally develops within eighteen months after infection, but this is not always true. I do not believe syphilis should be excluded because infection was long ago.

Iritis due to congenital syphilis is rare except in combination with interstitial keratitis. Last week a little girl was brought to me with both eyes intensely inflamed. She had marked

interstitial keratitis; she had rhagades about the mouth; she had Hutchinson's teeth; her blood Wasserman was four plus. The father, who brought the child to me, stated that "he had syphilis five years before marriage." This statement was questioned on the basis that it is extremely rare for a man to transmit syphilis five years after infection. Upon further inquiry this man admitted that he had syphilis less than three years prior to marriage.

In purulent iritis we used to think it was extension from the cornea into the anterior chamber causing the hypopyon, but now know the pus is from the iris. It generally occurs in infected corneal ulcers.

James Royden Peabody, Louisville: My observation and experience lead me to disagree with some of the authorities quoted by the essayist in regard to the cause of the iritis. For instance, he said focal infections in the teeth were not often the cause of iritis. I believe infected teeth are frequently responsible.

My understanding is that the so-called rheumatic iritis has been discarded and such cases are now regarded as due to focal infection or auto-toxic in origin. In acute rheumatic fever iritis seldom develops, and when noted it is metastatic due to the streptococcus.

In iritis due to focal infection I would place the teeth first, the tonsils second, the nasal accessory sinuses third. I have seldom encountered iritis that could be attributed to sinus infection. Some authors claim middle ear disease is frequently the focus of infection in iritis. Cohen maintains that focal infection in any part of the body may cause iritis, and lays particular stress on the nasopharynx. He speaks of a type of focal infection causing iritis where tonsils and teeth had been removed; there was no improvement following tonsillectomy or teeth extraction; cultures from the nasopharynx showed pathogenic organisms; autogenous vaccine was made and administered followed by rapid improvement of the iritis. Other observers have emphasized the importance of the intestinal tract as a focus of infection, claiming that cultures from the teeth and tonsils do not always tell the whole story. Cultures from the tonsillar crypts may show organisms, but these may not be the cause of the iritis. The point is further emphasized that organisms present in the throat, nose or sinuses may not really be the cause of the symptoms, that the responsible organisms may be destroyed in the culture media.

In my experience the cases which have puzzled me most have been patients presenting eye symptoms where I have been asked to decide whether the tonsils should be removed or the sinuses treated. I always inspect the teeth and if any are suspicious the patient is referred to the dentist, but the cause of the trouble cannot

always be found. In some instances the dentist has already been consulted and roentgen-ray examination made without finding any trouble with the teeth.

It is very difficult to state positively in many cases that the tonsils, teeth or sinuses are foci of infection in iritis.

Jesse H. Simpson, (In closing): I wish to thank the gentlemen for their liberal discussion of my paper. The principal features which I desire to emphasize are: that outside of iritis induced by trauma or metabolic disturbances, the disease is primarily and essentially the result of blood stream infection.

EXTENSIVE DAMAGE TO URETHRA, VAGINA AND OTHER SOFT TISSUES DURING CHILDBIRTH*

By OWSLEY GRANT, Louisville.

I saw what I think is an unusually interesting case in consultation with Dr. Chas. W. Hibbitt two days ago. The patient is a young married woman from the mountains of Kentucky. She is twenty years of age and gave birth to a baby four months ago. She gave the history that since the birth of her baby "she had not been able to hold her urine." I did not then know just what other trouble she had. It seems the doctor in the country had attempted some plastic operation about the vaginal orifice without accomplishing any good.

Dr. Hibbitt asked me to examine the woman; she was lying on the table draped in the regular manner; he had simply made a vaginal examination; but did not inform me as to the condition discovered. I introduced my finger into what was supposed to be the vagina without looking at the parts and was surprised that it caused her terrific pain. This was thought strange in a woman who had given birth to a baby four months before. It was then discovered that instead of my finger being inserted into the vagina it went directly into the urinary bladder. The entire front wall of the vagina had appeared disappeared and nothing remained but the posterior wall. The urinary bladder was entirely open. Both ureters were catheterized without using a cystoscope; both catheters entered the renal pelvis without any difficulty.

The question of repair then arose: I examined first for any remnant of the urethra. She said it was a forceps delivery. She had no urethra so far as I could determine. The opening where the sphincter muscle was, could be distinctly seen in its proper relation to the trigone which appeared normal. The lower part of the symphysis pubis was de-

nuded of skin and vaginal covering which exposed the periosteum.

I felt certain that I could not construct anything resembling a urethra, so what I did was to make a small flap that will hang in front of the urethra and thus allow the vesical cavity to at least partially fill with urine. The only other alternative I could see which promised any measure of relief was to transplant the ureters. The remnants of the vagina were stitched together leaving the ureteral catheters in place. My idea was that the only chance we had of this girl retaining her urine was to make this ball-valve flap which would impinge against the vesical neck. Of course if this is successful when she desires to micturate she will simply have to catheterize herself. There was no chance of restoring sphincteric action.

This is the most extensive damage to the urethra and urinary bladder that I have ever seen. How such an injury occurred from childbirth I do not understand. The entire upper surface of the urinary bladder was denuded so the symphysis pubis could be plainly seen with the periosteum over it.

DISCUSSION.

J. Garland Sherrill, Louisville: The case reported emphasizes the fact, which we all fully understand, that many deliveries are best accomplished by the Cesarean operation rather than by forcible extraction through the natural channel. The more I see of vesico-vaginal fistulae, and conditions similar to the one described by Dr. Grant, the more I admire the work of the late Dr. Marion Sims. There is no surgery more difficult than plastic operations around the urinary bladder, in extrophy, vesico-vaginal fistulae and similar conditions.

In Dr. Grant's case there is no likelihood of re-establishing sphincteric action, as the urethra has been destroyed by tearing or sloughing. If this woman were older I would be in favor of transplanting the ureters to afford comfort because her condition is very distressing.

I recall a woman, also from the Kentucky mountains, who came under my observation after half a dozen or more operative efforts had been made to relieve a condition similar to this. And I must confess that a couple of efforts on my part were even less successful. It is one of the most difficult things to handle in the entire realm of surgery. If Dr. Grant secures a satisfactory result he is certainly to be congratulated.

Louis Frank, Louisville: I have seen two cases similar to the one described by Dr. Grant. One of them, also a young woman from the mountains, had three openings into her urinary bladder with the entire base of the organ destroyed. I think after thirteen unsuccessful operations I finally succeeded in getting a satisfactory result; but to accomplish this it was necessary to do

*Clinical report before the Louisville Medico-Chirurgical Society.

what Dr. Grant has suggested, i.e., reconstruct the urethra. Her ureters were both exposed and discharging into the vagina and of course, she had no urinary control. This woman had an opening on one side of the vaginal fornix which admitted two fingers; on the other side the opening was one finger in size. These "were rather easily closed. She has been delivered by means of a hook made of a poker heated in a log fire. I daresay if the suggestion made by Dr. Sherrill had been followed and Cesarean section performed by the country physician this woman would have died. I think we should be very careful in advocating Cesarean section to be performed by physicians in rural districts. The results are not always satisfactory even in cities, when performed by competent surgeons, and where they have proper facilities, hospitals, trained assistants, etc.

We had another case in the wife of a prominent Louisville man. We saw her in consultation at the Norton Infirmary where delivery had been attempted by two local physicians. The child was dead and I advised decapitation but for some reason craniotomy was not done and the child was delivered piecemeal. The anterior vaginal wall had descended with the head of the child and was pressed between the symphysis pubis. As a result the entire vesical trigone and urethra sloughed away. A plastic operation was performed re-establishing the destroyed trigone, and constructing a new urethra by utilizing the labia and structures of the vaginal vestibule. The external urethral orifice is by this operation displaced upward. She can retain her urine perfectly but when she desires to micturate she has to tilt herself forward in a sitting position and thus allow the vesical cavity to empty itself. This woman has since remained perfectly well.

As to the cause of the damage in Dr. Grant's case: Where there is sloughing of tissue from pressure on the anterior vaginal wall and urinary bladder between the head and the pubes, urine does not begin to escape before the end of three to five days. Where the damage is inflicted by forceps, naturally the urine begins to escape immediately. The most serious types are those where sloughing results from pressure necrosis.

I would suggest to Dr. Grant, if the operation already performed is unsuccessful, that he might close the base of the urinary bladder as was done in the case I have mentioned and provided sufficient soft tissues are available to make the necessary dissection he can construct a new urethra.

Owsley Grant, (In closing): I am obliged to the gentlemen for their discussion and suggestions. I wish the obstetricians present had said something about the case, particularly whether in their opinion the damage in this case was caused by forceps or by long pressure of the

child's head on the perineum. I think it was caused by pressure of the head, although the history obtained is not entirely clear.

In this case not sufficient vestige of the urethra could be found to reconstruct a new one. The operation which we did was performed under sacral anesthesia. There was no straining at any time nor did the patient complain of any pain. The only discomfort she had was when we touched the labia with instruments.

The result of the operative procedure cannot be foretold. However, I thought the case of sufficient interest to warrant detail record.

SPLENECTOMY FOR BANTI'S DISEASE.*

By J. GARLAND SHERRILL, Louisville.

For many years it has been recognized that the spleen showed a marked tendency to enlargement in the presence of certain bacterial infections and in certain parasitic diseases as well. This is particularly true of malaria and of the Leishman-Donovan bodies. This parasite has been identified as the cause of tropical splenomegaly.

While the malarial parasite is recognized as transported by the mosquito, anopheles type, the Leishman-Donovan body is transported by the bedbug, *cimer rotundatus*. It infests particularly the endothelial cells of the spleen and liver and the bone marrow. Spirochetes also cause splenomegaly in certain instances. Splenomegaly also follows certain acute bacterial infections, of which typhoid fever is a notable example. Certain pyogenic processes, involving particularly the portal radicles, also appear as causative of such enlargement. It is quite probable that other forms both of bacteria and of parasites are active in the production of certain unexplained cases of hyperplasia of the spleen.

Extensive studies of the spleen from a medical and physiological standpoint have been made for many years dating as far back as Virchow's discovery of leukemia in 1845, (which is claimed, however, for Hughes Bennett by Moynihan). The surgical literature of value upon this subject has for the most part been published within this generation.

Virchow first associated abnormal blood states with enlargement of the spleen or leukemia. Later Cohnheim separated a group of splenic enlargements with a different blood picture as pseudoleukemia and subsequently Gretzel used the term splenic leukemia to designate what is now described as Von Jaksch's anemia, or infantile pseudoleukemia.

G. Banti's first work describing the syndrome which now bears his name appeared in 1883. The chief clinical features of this dis-

*Read before the Louisville Medico-Chirurgical Society.

case, the exact causation of which remains undetermined, are splenic enlargement, cirrhosis of the liver, hematemesis, ascites and anemia. The blood picture is characteristic, showing a diminution of red cells, platelets and hemoglobin, also a leucopenia with severe secondary anemia.

Fowler says that because of Banti's insistence on unknown etiology in the types described by him, he has done more to retard the advance of proper classification of certain splenomegalias associated with anemia and tended further to confuse the syndrome than he served to clarify it.

Moschowitz has presented cogent arguments against its recognition as a separate entity. He also claims that a fibrogenetic toxin, probably of intestinal origin, attacks the organs draining the portal areas primarily, resulting in a fibrosis of the spleen.

Banti, in his latest contribution, favors some infective agent as the causative factor and suggests the view that the spleen produces another toxin which acts upon the liver and the splenic veins. Moynihan points out that this is unnecessarily complex, also that there is no parallel in the production of disease, and claims that there is no reason why a single agent could not produce both the splenic and hepatic lesions,—an opinion with which I wholly concur. It appears reasonable to conclude that the causative toxin may produce a hyperplasia of both the liver and the spleen. The cellular structure of both organs is increased to counteract and destroy the poisons which are so damaging to the integrity of the blood. The results of the glandular hyperactivity are evidenced by the fibrosis which occurs both in the spleen and in the liver. The direct result of this fibrosis is interference with venous return with the development of ascites. The hematemesis which occurs in this disease is probably the result of three distinct factors, the changes in the constituents of the blood and of its viscosity, the obstruction to the blood passing through the spleen and finally to torsion of the vasa brevia from the displacement which results from the size and weight of the spleen.

Banti's disease assumes greater importance than some of the other splenomegalias because of its uncertain etiology. The known conditions resulting in enlargement of this organ may be attacked therapeutically in a scientific way.

Within recent years splenectomy has been resorted to in the treatment of the progressive and intractable types of anemia with sufficient frequency and with results sufficiently encouraging to justify its further employ-

ment.

The exact reasons for improvement following excision of the organ in cases of Banti's disease and similar conditions is not entirely clear. The sanest view seems to be that the spleen in cases of hypertrophy loses some of its blood producing function and requires more nourishment to obtain smaller results than is normal. The toxin of parasites, as the case may be, destroys the blood cells more rapidly than the remaining splenic tissue can replace them. In other words, the entire splenic function is overcome or held stationary by the invading host. If this view is correct the rationale of splenectomy is apparent. The removal of the spleen takes from the organism these causative bodies, either bacterial or parasitic, and at the same time any detrimental products of tissue destruction resulting from their presence in the spleen. By the removal of the gland greater stimulation of activity is forced upon the marrow and other blood-making structures. The tax of destroying waste products which has overwhelmed the liver is greatly lessened and the organism is placed in a better position for recuperation. Upon this contention splenectomy is undertaken as a rationally scientific procedure and not as one of empiricism. It might well be added at this point that the removal of any infectious processes present in an individual case will further assist the return to health.

Upon this belief we based our decision to submit the patient whose case is reported herewith to all the necessary surgery to obtain relief.

Indications for splenectomy. The general surgical opinion at present is that splenectomy is indicated in all forms of splenomegaly which do not respond promptly to therapeutic measures. This includes the parasitic types, even lues. When therapeutic measures have failed in the latter group of cases (leutic splenomegaly) after a fair trial, splenectomy has shown brilliant results. Recently splenectomy has been proposed for the cure of purpura hemorrhagica of unknown origin, so-called idiopathic cases. It is also indicated in the rare conditions of primary tuberculosis, sarcoma and hydatid disease of the spleen. The presence of cirrhosis jaundice or ascites does not contraindicate operation. Hematemesis is not a contraindication except perhaps immediately after a sharp attack of gastric hemorrhage.

Wood and Gideon report two cases of fatal hematemesis occurring after splenectomy. One of the patients had no hematemesis prior to operation. It was present in the other case both before and after operation. Careful consideration should be given the possibility of

this complication when operation is contemplated.

According to W. J. Mayo, a patient with fibrotic splenomegaly and secondary anemia unrelieved by medical measures is potentially a subject for splenectomy irrespective of the disease causative of the enlargement.

Fowler says it is unwise to operate after a grave hemorrhage or when the spleen is extremely large. The spleen may be shrunk prior to operation by judicious use of X-rays. He advises immediate splenectomy as soon as the diagnosis is made without waiting for the development of the more severe grades of anemia or hematemesis, and believes this will lessen the mortality. In view of the grave prognosis in these cases of unknown origin which failed to respond to therapeutic measures, splenectomy offers marked improvement and in some cases a permanent cure.

The operative mortality varies as reported from different clinics. According to Banti, and also according to Rodman and Willard, it is 12.5 per cent in the first stage, while operation after ascites shows a mortality of 50 per cent. W. J. Mayo reports a total of 71 splenectomies in splenic anemia of unknown origin up to January 1, 1921, with 9 deaths. He also reports 38 cases of splenic anemia of known origin, for which splenectomy was performed. In a total of 249 cases of splenectomy for all types of diseases the mortality was 10 per cent. In the 38 cases mentioned above 11 showed chronic sepsis following systemic infections accompanied by septic arthritis, tonsillitis, phlebitis and osteomyelitis. The operative mortality in these cases was 27.3 per cent, the remainder being cured or greatly relieved. Luetic splenic enlargement showed a mortality of 16.6 per cent in six cases, one death. Eight spleens were removed for splenic anemia in children and Von Jaksch's disease with no deaths; 11 for portal cirrhosis with 4 deaths; six for primary biliary cirrhosis; thirty-two cases for hemolytic jaundice; 27 splenectomies for myelogenous leukemia after proper preparation by irradiation. In the latter cases, however, the improvement was only temporary.

Splenectomy is not indicated in typhoid fever or malaria with splenic enlargement, except in the latter condition for distinct indications.

The following report of a case of Banti's disease, which was observed during my service at the Louisville City Hospital in the fall of 1922, is submitted herewith. The man had been under the medical service in charge of Dr. John W. Moore for some time previously. The diagnosis of Banti's disease was made by Dr. Moore notwithstanding the history of ingestion of large quantities of alcohol for a considerable period of time. It was later

found through Dr. Rush that the history of alcoholism was incorrect. Operation was deferred for some time with a view to the positive exclusion of syphilis, or rather to corroborate the laboratory findings, since I have observed syphilis of the liver in which the Wassermann reaction persistently remained negative. This patient showed no response whatever to antiluetic treatment and came to operation October 25th, 1922. He showed a somewhat slow, but gradual improvement and left the hospital on January 1st, 1923.

T. B. P., male, white, aged forty-two years, occupation farmer, was admitted to the Louisville City Hospital August 28th, 1922, presenting the following history:

On August 16th, 1918, while loading a rail on a hand car the rail slipped and struck him on the abdomen. Ever since that time he has had trouble with his stomach. He was "laid up" for five weeks with abdominal pain. Two months later, about the seventh week after the injury, and after the patient was going about, he noticed that his abdomen began to swell. He has continued to have abdominal pain until the present time.

On August 15th, 1922 (about two weeks ago), he vomited some blood. The attack was markedly severe accompanied by stabbing pain in the right hypochondrium and nausea. The hematemesis lasted at intervals for twenty-four hours. The blood was lumpy with some frothiness. Melena appeared the day after the vomiting of blood and has continued until the present time. Intermittent lightning pain in the back "shooting up to the back of his head" has been present off and on for four years or since the accident. Swelling of the feet has been present for the last three days—never before. He has had pain at the inner side of left knee at intervals ever since the accident. He has lost thirty-four pounds in weight during the last four years. Has been weak and unable to work for the same period. Eructations after eating for the past four years. He also has a feeling of fullness in the stomach. Ascites developed about two months after the accident. He has never had any jaundice.

Previous history: Patient has had measles, whooping cough and influenza, negative for rheumatism and venereal disease including lues. Family history: father dead, cause unknown; mother living and well, also one brother; one sister died of typhoid fever, two others living and well. The patient is the father of three boys and one girl, all healthy children. No tuberculosis or cancer in the family. Habits: a moderate smoker; has been drinking one-half pint of whiskey per day for six months. Has vertigo at times; no headache. Eyes weak, hearing normal. No

cough, no shortness of breath; has palpitation at times. Intestinal function irregular; has had "dyspepsia."

Physical examination: White adult male, approximately forty years of age. Does not appear acutely ill nor in great distress. Patient has a peculiar sallow appearance. No scars on the head; no deformity. Cataract present in left eye; has been unable to see with this eye for fourteen years. Pupils react to light and accommodation. Teeth in fair condition; offensive odor from mouth. Neck, chest and heart negative.

The abdomen appears distended. Superficial veins of abdomen are to be seen coursing upward into lower portion of chest. Free fluid is present in the peritoneal cavity. No involuntary rigidity and no marked tenderness. Edge of liver felt about three inches below rib border on right side. On left side liver dullness increased; on palpation liver seems to be nodular; liver palpable about three inches below ensiform cartilage. Spleen enlarged on percussion and easily palpable. Kidneys not palpable, no tenderness in either kidney region. Nervous system: negative.

Clinical impression after examination: (1) alcoholic cirrhosis (portal); (2) Banti's disease. The abdomen was tapped and about a pint of colorless fluid following which the patient felt relieved. Roentgen-ray examination of stomach negative.

Operation October 25th, 1922: Median incision in epigastrium. Upon opening the abdomen a very large spleen presented. A considerable amount of fluid escaped. The splenic artery and vein were doubly clamped and ligated; the vasa brevia were also clamped and ligated and the spleen readily removed. Examination of the gall bladder revealed the presence of calculi and these were removed.

I might add that cultures were made of the ascitic fluid removed prior to operation on two different occasions and no growth obtained. Smears were also negative. Cultures of the gall bladder contents showed colon bacilli. Two blood Wassermann reaction tests were made (August 31st and October 12th) and both were negative.

On September 6th, 1922, blood examination showed erythrocytes 3,200,000; leucocytes 5,500; hemoglobin 65 per cent (Tallquist). No differential count made.

October 3rd, 1922, leucocytes 3,700,— differential, polymorphonuclears 67, basophiles 1, lymphocytes 25, transitionals 7. Hemoglobin 75 per cent (Tallquist). No record of erythrocytes.

November 7, 1922 erythrocytes 3,210,000, leucocytes 28,300; differential, polymorphonuclears 86, eosinophiles 1, basophiles 0, lymphocytes 10, transitionals 3; hemoglobin 65

per cent (Tallquist).

Some anisocytosis and few poikilocytes (slight).

November 11, 1922, erythrocytes 3,130,000, leucocytes 26,500; differential, polymorphonuclears 76, eosinophiles 3, basophiles 1, lymphocytes 15, transitionals 6, normablasts 1, slight anisocytosis and poikilocytosis; hemoglobin 65 per cent (Tallquist).

All white cells seem to be very much more granular than normal, so that polymorphonuclears, eosinophiles and basophiles are distinguishable with difficulty; this was also true of the count made three days ago.

November 13, 1922, erythrocytes 2,970,000, leucocytes 12,400; differential, polymorphonuclears 77, eosinophiles 3, basophiles 2, lymphocytes 14, normablasts 2; hemoglobin 62 per cent ((Tallquist).

November 17, 1922, erythrocytes 2,890,000, leucocytes 11,200; hemoglobin 65 per cent (Tallquist). No differential count because of poor stain.

November 21, 1922, erythrocytes not counted, leucocytes 10,300; differential, polymorphonuclears 65, eosinophiles 1, basophiles 5, lymphocytes 32.5, transitionals 1.

White cells appear less granular than in all previous examinations.

November 27, 1922, erythrocytes 2,660,000, leucocytes 9,450; differential, polymorphonuclears 64, eosinophiles 2, basophiles 0, lymphocytes 34; hemoglobin 65 per cent (Tallquist).

The following urinalyses were made: August 29, 1922: color dark amber, clear acid, specific gravity 1015, albumin and sugar negative. August 31, 1922: color amber, cloudy, acid, specific gravity 1024 albumin and sugar negative. September 5, 1922: color amber, clear, acid, specific gravity 1018, albumin and sugar negative. September 2, 1922: color straw, clear, acid, specific gravity 1012, albumin and sugar negative.

Surgical specimen report: Gross description: Specimen consists of spleen 230x120x65 mm., and weighs 970 grams. Color is deep brownish red. Surface is rough and shiny and at the upper pole there are numerous eminences ranging in size from 1 to 5 mm., in diameter. Consistency generally is moderately firm. Cut surface is moist, rough or finely granular. Malpighian bodies not visible. Microscopical description: section shows diffuse sclerosis such as is seen in Banti's disease. Gross diagnosis: hypertrophy of spleen.

It has for some time seemed to me that there is a possibility of gallbladder infection being one of the causative factors of this disease and this case seems to point in that direction. Certainly one case by no means would prove conclusively that this is true.

We have found an operation for splenectomy that hemorrhage can be almost certainly prevented by doubly clamping the splenic artery and vein and the vasa brevia at the left margin of the stomach. The latter vessels bleed very freely unless this provision is employed. Because of the size of the spleen a large amount of blood is necessarily removed with the organ, but if the observation made previously that certain toxic products remain in the organ, is true, the removal of this blood will be beneficial rather than the opposite. The results of splenectomy appear to prove that the organism is provided with a haematopoietic mechanism which permits of the removal of the spleen with safety to the individual. The reports upon the immediate effects and end results following splenectomy are not numerous. In Hitzrot's cases of so-called Banti's disease reported in 1918 there was a definite drop in the red cell count and the hemoglobin beginning on the tenth and fifth days, respectively. In both instances this drop was more evident in the hemoglobin. The improvement was gradual in both of his cases. The white cells showed a definite increase in the total number and also in the polymorphonuclears. The fragility tests by hypotonic salt solution made before operation showed a beginning hemolysis at .48, complete at .36. Twelve days after the operation this was increased to .46 and .44, complete at .28, showing a slight increase in the resistance of the red cells during this stage.

A very interesting report is made by Southerland and Burghard of a splenectomy performed in 1910 in a girl six years of age in whom the hemoglobin was 30 per cent, the red cells 1,870,000, and the leucocytes 2400, in which a very marked improvement was shown. Two months later the hemoglobin was 65 per cent.

Sweester reports end results in 37 cases in his series. One was a failure from the start, requiring paracentesis twice a week, but patient still alive eight months after operation. One succumbed at the end of five months, having had repeated intestinal hemorrhage. Six were alive and well at a time varying from two months to fourteen months after operation. Seventeen were alive and well for periods varying from fifteen months to ten years. Fifty-five per cent of the patients who survived operation lived and remained in good health for more than fifteen months. There is a remarkable variation in the blood picture in the different cases. Not infrequently there appears to be a temporary progression of the disease, but as a rule in a short time a slow but steady improvement, both in the general physical condition of the

patient and the blood state, is observed. It may be stated without fear of contradiction that most patients with splenic anemia who survive splenectomy show progressive improvement. It has been my experience that the outlook in cases of myelogenous leukemia as regards permanent cure is less favorable than the other varieties. Most of these patients in the natural history of the disease show periods of temporary improvement and such an occurrence is noticed after splenectomy. They tend, however, to a fatal termination within two or three years, which is contrary to the results in the splenic type of leukemia.

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DISCUSSION

J. W. Rush, Jeffersonton: I believe the quantity of alcohol stated by Dr. Sherrill is overestimated. The patient told me that he had not been taking any alcohol, or very little.

He attributed his trouble, as Dr. Sherrill stated in his report, to a fall while loading a rail on a hand car. He was then working as a section hand for one of the railroads, and claimed he injured his side which caused his trouble. He called me after another physician in the country had decided his case was hopeless. Anyone who looked at the patient when I first saw him would have said it was a hopeless case. He was bed-fast, his abdomen was greatly distended, he had been vomiting blood, etc., so I thought the best thing to do was to get him in the Louisville City Hospital. He was kept there three or four weeks under observation. I happened to be in the hospital the day he was operated upon, and must say if there were miracles in bible times, I believe there was a miracle in this man's recovery, because I have never seen a more hopeless case. His life was hanging on a slender thread for three or four days after the operation. The loss of blood in this spleen was immense. When the spleen was removed it seemed like it was "pouched out," and possibly contained a quart of blood. After proper care and treatment this man was dismissed and sent home. Since then he has been working on a farm. Last year he worked on the public road driving a team, says he is hardly able to do a regular man's work. I believe it was only by the services that he received at the Louisville City Hospital, and the assistance given him by you gentlemen who took part in the management of the case with Dr. Sherrill, that this man is here to tell the story tonight. He is still not a well man. I am going to use my influence to have him return to the hospital for another blood count and hope then that something more can be done

for him which will further prolong his life as he is a young man and has a family needing him at home.

John W. Price, Jr., Louisville: The leucocyte count in the case reported seems rather peculiar. It hardly seems possible that that on October 3, it could be 3,700 and on November 7, 28,000, then on November 13, 12,400. This would be a tremendous reduction in the leucocytes within a few days. A further reduction to 9,450 is shown on November 27.

This leads to the question: What part in Banti's disease does leucocytosis play? Is it characteristic to have a leucocytosis of 28,000, if so should it continue high, or should we expect a normal leucocyte count in Banti's diseases?

Stuart Graves, Louisville: Dr. Sherrill telephoned me yesterday, asking if I would locate the specimen exhibited and review it and discuss Banti's disease. I was not able to get very much of the clinical history because Dr. Sherrill had the chart with him. I did review the subject for my own pleasure and benefit, as well as for preparation to discuss the cause of enlargement of the spleen.

We might consider the various types of splenic enlargement together, and then perhaps by the process of elimination we can get some light on the case reported. I believe the observations made by Dr. Price are quite apropos. There is a possibility of error in some of the findings. There is also to be borne in mind that the content of the blood as shown by quantitative estimation from time to time in normal people shows a very wide range of fluctuation.

Dr. Sherrill will recall that his patient had cirrhosis of the liver with hypertrophy which probably blocked the portal circulation to a greater or lesser extent. There is also every reason to believe that the history of every sick man given to the hospital resident is more likely to be true than when told to his family physician in his home town. The history of alcoholism is probably correct. It is reasonable to conclude that the man did have blocking of the portal circulation. And we know that one of the results of portal obstruction is an enlarged spleen. I recall having reviewed the cases of cirrhosis of the liver on record in the laboratory of the Boston City Hospital and tabulated from these cases the relative weights of liver and spleen. In all cases there was marked enlargement of the spleen. Of course, one only has to appreciate the relation of the spleen to the liver to realize that any interference with the portal circulation is certain to produce long-continued back pressure on the spleen, sometimes due to blocking of the portal circulation in the liver itself, sometimes due to blocking of the portal circulation outside the liver cirrhosis, and oftentimes by thrombosis of the splenic vein. This condition of the splenic vein is very likely to be overlooked even at au-

topsy unless careful dissection is made. Since making the comparative study in the laboratory of the Boston City Hospital I have also investigated the relation of the splenic vein.

Hypertrophy of the spleen might conveniently be divided into two classes, those whose cause and nature are fairly obvious and those about which we do not know so much because they are comparatively infrequent and little understood. In the first group we could list (1) hypertrophy due to chronic passive congestion; (2) primary tumor, usually lymphoblastoma, sometimes called Hodgkin's disease primary in the spleen; (3) secondary tumor, especially lymphoblastoma and myeloblastoma, in which the great infiltration of lymphocytic or myelocytic neoplastic cells caused the enlargement; (4) infections of the chronic type, such as malaria, Kala-azar and echinococcus, and (5) amyloid, quite characteristic both grossly and microscopically. In the second group we might list (6) polycythemia or Vaquez's disease; (7) splenomegaly or Banti's disease or splenic anemia; (8) Gaucher's spleen or primary endothelioma.

In connection with the consideration of Dr. Sherrill's case I have thought it might be interesting to point out briefly the cause of the enlargement of the spleen in the types listed above so that we might be aided in coming to a correct diagnosis by a process of exclusion. In chronic passive congestion (1) resulting from obstruction to the venous return due to sclerosis of the liver or due to thrombosis in the splenic vein, the hypertrophy is due to increase in blood content and increase in connective tissue stimulated by long continued mechanical injury. In primary and secondary neoplasms (2) the increased weight and size result from the infiltration of tumor cells and increase of supporting stroma. In infections (3) enlargement may be due to various causes, as (a) acute inflammatory reaction, (b) increase of connective tissue in chronic infections like Kala-azar and malaria, or (c) a combination of chronic inflammatory products with the infectious agent and its products, as in echinococcus disease. In amyloid disease (4) the hypertrophy is due in greatest measure to the peculiar amyloid substance which is said to be a chemical secretion of the fibroblastic cells. Most often it is associated with tuberculosis, although it is said to be found sometimes in chronic malaria and syphilis. All four of the typical cases I have seen post-mortem have been associated with chronic tuberculosis. In polycythemia (5) the increase of the spleen is due chiefly to the excessive number of red blood cells which sometimes number fifteen millions per cubic millimetre. In Banti's disease, commonly called splenomegaly or splenic anemia, the weight may reach 3 kilograms and the organ is engorged with blood. The veins are enormously distended. Frequently, but not always, there is associated sclerosis and hyper-

trophy of the liver. Thrombosis of the splenic vein was found in three of MacCallum's cases. When the spleen is extirpated and the blood escapes, it shrinks and collapses and becomes a flabby, elastic mass, showing a grayish pink, translucent cut surface in which the pulp sinks below the finely interlaced connective tissue. Microscopically the Malpighian bodies are relatively small and there is increased connective tissue, but nothing diagnostic otherwise of the condition.

In Gaucher's spleen or primary endothelioma the characteristic is the presence of many large, phagocytic, multi-nuclear cells, whose origin is disputed, but which are looked upon by many as endothelial cells and the whole process as neoplastic. Cases are very rare.

In Dr. Sherrill's case the spleen weighed 970 gms. and measured 65x120x230 mm. in diameter. It was deep brownish red and moderately firm. The cut surface was moist and finely granular. The specimen evidently contains an excessive amount of fibrous tissue. Microscopically sections show a diffuse sclerosis such as seen in Banti's disease.

In reviewing the case reported in the light of this study and the features that have been mentioned here tonight, it would strike me that there is nothing particularly mysterious. The chances are that the man had been a long time a user of alcohol. He did have hepatic cirrhosis as shown by the physical examination and the observations made by Dr. Sherrill in the operating room. He had a blood picture characteristic of secondary anemia. We know that secondary anemia stimulates the bone marrow to overactivity and as a consequence there are thrown into the circulation premature and undifferentiated cells, both white and red.

If Banti's disease were demonstrated as a pathological entity then we might look possibly for some characteristic morphological pathology, but so far as I have been able to find it has not been so established in spite of some of the authorities mentioned by Dr. Sherrill. I think sometimes when we find a condition similar to this we grope about looking for something that is rare, when as a matter of fact the landmarks are within view but are overlooked. The landmarks in this case reported are fairly evident. The man had alcoholic cirrhosis of the liver, portal back pressure and splenic enlargement. His secondary anemia resulted from these conditions.

James W. Bruce, Louisville: A leucocyte count of 3,700 when the patient was admitted to the hospital sounds to me about right. We know that in Banti's disease one characteristic is leucopenia with relative lymphocytosis. The leucocytosis that appeared later could have been accounted for as a post-operative condition. In the majority of serious operations there is a leucocy-

tosis later. The blood picture seems to me typical of Banti's disease.

I disagree with Dr. Graves about the diagnosis of alcoholic cirrhosis of the liver, for the reason that splenectomy does not cure alcoholic cirrhosis. On the other hand we know it does a great deal of good in Banti's disease. I do not see how splenectomy would make much improvement in alcoholic cirrhosis because the condition there is primary in the liver and secondary in the spleen.

Gavin Fulton, Louisville: From what Dr. Sherrill has told us about the condition of his patient after the operation, rather than before, it seems to me that the variation in the leucocyte count is easily understood. We know that in Banti's disease leucopenia is one of the outstanding characteristics. Dr. Rush has stated that the spleen contained a tremendous amount of blood and there was also considerable blood lost during the operation. Under these circumstances we would simply have a hemorrhagic leucopenia even if there was no reduction in the leucocytes from Banti's disease.

I agree with Dr. Bruce that splenectomy would have no effect on alcoholic cirrhosis of the liver, on the contrary the cirrhosis would be progressive.

J. Garland Sherrill, (In closing): I appreciate the discussion of this case very much. Dr. Moore investigated the history of the patient very thoroughly and I am sorry he is not here to answer some of the questions, because he had the man under observation for several weeks before I saw him. He was then kept under observation for a week or two because I wanted him to have antiluetic treatment.

An important factor in determining the cause of the trouble in this case is the presence of infection of the biliary passages and the gall bladder. Any form of infection which obstructs the outflow of bile into the duodenum and forces infective material backward into the liver tends to cause infection of the biliary radicles, portal stasis and hepatic enlargement. I think that was a very important factor in this case.

Any process which would give rise to thrombosis of the splenic vein might cause the organ to become enlarged. In this case the history elicited by Dr. Moore was very convincing to me that the man had Banti's disease, and that the trouble existed prior to the injury several years previously.

Banti's claim was that this is a type of splenic enlargement with secondary anemia without known cause. Moschowitz takes the stand that Banti's disease is not a pathologic entity, that it is simply a condition which develops in secondary anemia with enlargement of the spleen. Whether the anemia or splenic enlargement comes first has not been determined.

Splenectomy in syphilitic lesions of the organ has sometimes proven very beneficial to the pa-

tient. In the case reported two Wassermann tests were made with negative results. There was no history of syphilis and no clinical signs. Moreover, antisyphilitic medication had no effect.

Gall stones had probably existed for a long time. We know that gall stones are seldom followed by splenic enlargement, but they may be a factor in the picture. The spleen may become enlarged during the course of any infectious disease.

One interesting feature about Banti's disease is that much remains to be known about it and there is much divergence of opinion. When I first saw the patient who was just before us I was not entirely convinced by Dr. Moore that it was a case of Banti's disease and for that reason the man was kept under observation for a considerable length of time. I suggested in the beginning that perhaps there was an infective lesion of the biliary passages. The question of cirrhosis was also carefully studied. After eliminating the possibility of a luetic lesion the man was subjected to operative treatment without further delay.

One fact that we must realize is that there are certain blood stream infections that are followed by enlargement of the spleen, notably typhoid fever. That is one of the most prolific sources of splenic enlargement which disappears within a short time after subsidence of the typhoid. The spleen is often enlarged in protracted cases of malaria.

In Banti's disease enlargement of the spleen is primary, enlargement of the liver secondary. Blood changes follow the splenic enlargement as does also leucopenia. There is more or less diminution of the erythrocytes, hemoglobin may or may not be reduced. In Banti's disease we have first splenic enlargement, then hepatic enlargement, followed by ascites and hematemesis; although the latter symptoms may occur earlier in the history of the disease.

Personally I think Banti's disease is a misnomer, it should be called splenomegaly. Giving the name of a man to a certain syndrome does not mean that it is an entity, as the syndrome may occur from many different causes.

I cannot agree with the statement made by certain surgeons that every patient with splenic enlargement should be operated upon. Certainly no one should remove an enlarged spleen from typhoid fever, and few of us would operate in the enlarged spleen of malaria. Certain syphilitic spleens require surgical removal, others may be decreased in size by judiciously administered antiluetic treatment. It was thought for a long time that removal of the spleen had no effect on the longevity of the individual, but I do not believe this has been definitely determined.

The patient in this case has gained forty

pounds since the operation. His weight on admission was one hundred and six; he now weighs one hundred and forty-five pounds. He will be asked to return to the hospital from time to time for further comparative study of the blood findings. The case is reported as one of recovery from Banti's disease following splenectomy.

AUTONOMIC IMBALANCE*

By LEON K. BALDAUF, Louisville.

In the present state of our knowledge, physio-pathologic terms such as cardio-neurosis, nervous indigestion, nervous diarrhea, vague neurosis, nervous asthma, neurasthenia, psychoneurotic disturbances, etc., are distinctly unsatisfactory. These names have hitherto been employed in the description of many vague symptoms obviously referable to blood vessels and viscera; but they fail to convey any conception of the relationship between normal and abnormal physiology. Physicians who see neurotic individuals are familiar with various nervous manifestations referable to the viscera and which may originate in endocrine disturbances; symptoms evidently dependent upon lesions involving the thyroid, adrenal, pituitary, parathyroid, also the ovaries and other sex glands are common illustrations.

These observations are interesting in that they apparently have a bearing on disturbances of the autonomic nervous system. In this paper an attempt will be made:

1. To briefly review the anatomy of the autonomic nervous system;
2. To differentiate the autonomic and the sympathetic systems;
3. To compare the effects of drugs on these systems;
4. To describe clinical symptoms which may be considered as belonging to the two systems;
5. To discuss the treatment of these conditions.

Our present knowledge concerning the autonomic nervous system rests primarily on the researches of Gaskell, Langley and Dickenson, who demonstrated a much closer relationship to the general nervous system than had been admitted by previous investigators. The sympathetic nervous system contains both afferent and efferent fibers. The afferent fibers predominate and differ from efferent fibers of the cerebrospinal nerves in that they innervate smooth muscles and glands only. The efferent fibers of the cerebrospinal nerves innervate the striated muscles, and consist of a

*Read before the Louisville Medico-Chirurgical Society.

single neurone—a nerve cell and dendrite—situated in the spinal cord, and an axone traversing the entire distance from gray matter to muscle. The sympathetic fibers, however, present two neurones. The proximal neurone has a cell body lying in the gray matter of the spinal cord; the axone emerges from the anterior root and passes through a white ramus communicating with an end arborization (synapse) in a sympathetic ganglion; in the sympathetic ganglion are the cell bodies of a distal neurone. The axones of the distal neurones extend to the smooth muscle and secretory glands. The axone of the proximal neurone is called the pre-ganglionic and is medulated; the axone of the distal neurone is termed post-ganglionic and is non-medulated.

More recently Langley has shown that there is another set of fibers, not belonging to the sympathetic nervous system proper, consisting of two neurones,—one proximal and one distal,—conveying impulses to the same tissues as the sympathetic but not going to the striated muscles. He has included under one grouping all the different fibers innervating chiefly the smooth muscles and secretory glands, and describes them as sympathetic and non-sympathetic autonomic fibers.

The term autonomic or vegetative, then, includes all efferent fibers outside the cerebro-spinal axis, except those supplying the voluntary muscles. The sympathetic (proper), that is the thoracico-lumbar, sends fibers through the anterior roots of the second thoracic to the second lumbar. Here the superior cervical ganglion sends (a) fibers to the dilator muscle of the iris, (b) fibers to the smooth muscle of blood vessels of the ear, (c) fibers to the salivary glands, (d) fibers through the nervous accelerator to the heart muscle and glands of the bronchi, (e) fibers to the celiac, and (f) fibers to the inferior mesenteric ganglion.

The non-sympathetic portion of the autonomic system, viz: the automic system itself, is divided into the tectal, bulbar, thoracico-lumbar sympathetic sends nerve fibers acico-lumbar sympathetic sends nerve fibers to every region of the body, while the tectal, bulbar and thoracico-lumbar of the autonomic system (proper) supplies special regions only. The tectal or mid-brain system sends fibers to the sphincter of the iris and the ciliary muscle. The bulbar innervates the mucosae of the nose, mouth and pharynx, the lacrimal and salivary glands, the esophagus, stomach, liver, pancreas, small and large intestines. It innervates, also, the lungs and heart. The sacral innervates the lower portion of the large intestine, possibly also the upper. the urinary bladder and the external genital or-

gans.

The sympathetic nervous system, therefore, consists of an autonomic or parasympathetic portion, and a sympathetic system proper.

The autonomic system differs from the sympathetic in that it does not enter any ganglion, but traverses cranial or spinal nerves until it reaches the periphery where it enters a ganglionic mass and sends fibers into peripheral organs. The autonomic system consists of mid-brain, hind-brain and sacral portions. The mid-brain sends fibers which traverse the third nerve to the ciliary ganglion, thence to the ciliary muscle and sphincter. The fibers going to the nerve of Wrisberg, and the seventh nerve, reach the submaxillary and sublingual ganglion, thence supply the vasodilator nerves of the tongue, submaxillary and sublingual glands, the secretory and vasomotor fibers of the mucosae of the nose, soft palate and upper pharynx. The mid-brain also sends fibers via the glossopharyngeal nerve to the otic ganglion, and these control secretion and vasodilation of the parotid glands.

The most important portion of the hind-brain autonomic fibers extend through the vagus nerve. They go to the jugular ganglion and ganglion of the vagal trunk, thence send motor and secretory fibers to the esophagus, stomach and small intestine as far as the ileocecal valve.

The sacral autonomic system consists of fibers which pass outward through the second and third sacral nerves, and are connected with the ganglion of the hypogastric plexus. They send fibers which supply motor influence to the urinary bladder, colon and rectum.

Pharmacology of the autonomic nervous system: The two systems, sympathetic and autonomic, act alike in that nicotine applied to the synapse connecting the terminal of a pre-ganglionic fiber and the cell-fiber which gives rise to a post-ganglionic fiber, prevents conduction. The law seems to be universal that following brief stimulation nicotine interrupts the conduction path at the synapse. While they respond similarly to the action of nicotine, the two systems may be considered antagonistic; first as regards their response to drugs, and second their pharmaco-dynamic action.

According To Dana:

Autonomic or parasympathetic:

Mid-brain portion—Contracts pupils

Bulbar portion— Inhibits heart action
Dilates blood vessels
Inhibits sweat glands,
contracts muscle walls of
esophagus, cardiac
sphincter and stomach.

Sacral— Dilates blood vessels of rectum, anus, and genital glands.
Contracts muscles of colon, rectum, anus, and external genitals, urinary bladder and urethra.

Sympathetic:

Mid-brain portion— Dilates pupils
Bulbar portion— Accelerates heart action
Contracts blood vessels.
Stimulates sweat glands.

Relaxes muscle walls of esophagus, cardiac sphincter and stomach.
Sacral— Contracts blood vessels of rectum, anus, and genital glands.

Constant as may be the physiological function, is the behavior of the autonomic system toward pharmacological agents. A similar reaction follows the injection of epinephrin as occurs from stimulation of the sympathetic (proper) system which acts as if adrenalin has a special affinity for its neurones. Epinephrin does not affect the crainiosacral autonomic system in that way. Drugs which act on the sympathetic system are called vagotrophic. Pilocarpin is such a drug. It causes an effect almost similar to that produced by stimulation of the autonomic endings. Nearly all the effects which are produced by stimulation of parasympathetic nerves are induced by pilocarpin. The most marked exception is that the sacral autonomic nerves cause inhibition of the retractor penis, and pilocarpin causes contraction. The degree of effect produced by the two forms of stimulation is not always the same; it differs strikingly in the small intestine. The action of pilocarpin is not confined to the tissues innervated by parasympathetic nerves; it causes secretion from sweat glands, contraction of the uterus, and contraction or dilation of arterioles. Similarly the paralyzing action of atropin is not confined to parasympathetic nerves; it paralyzes the sympathetic secretory fibers of the submaxillary gland and the sweat glands. Atropin paralyzes the nerve endings and produces an effect opposite to that caused by stimulation of the nerves.

These two systems seem to act constantly and balance each other. The pupil in medium illumination remains midway contracted; there is a balance in the rate of the heart approximately of 72, midway between the vagus and the accelerans.

Barker, writing in 1913, says: "The balance maintained normally between the two antagonistic systems is one of the most interesting of physiological phenomena. Think,

for example, of the rate of the heart beat, how constantly it is maintained at a given level in each person when the body is at rest. The impulses arriving in the vagal system just balance those arriving through the autonomic system so as to maintain a rate of approximating 72 beats a minute, and a similar balance is maintained in the autonomic domain,—pupils, bronchial muscles, gastric glands, gastric and intestinal muscles, sweat glands, vesical muscles, etc. This equilibrium is all the more remarkable when one considers how frequently it is temporarily upset in the excess of physiological functions. The play of the pupils with varying lights, the opening of the bile duct at the call of chyme, the transport of colonic contents through one-third the length of the colon by one vehement contraction every eight hours, the sudden relaxation of the sphincter and contraction of the urinary bladder in micturition, the violence of the contraction in the domain of the nervus pelvici in parturition in the female and ejaculation in the male, come to the mind as examples of the sudden overthrow of balance."

What is the controlling agency? There may be: first a control of the central nervous system, second through chemical action dependent upon origin in the glands of internal secretion. In almost all mammals there is a constant production of epinephrin; and this may be considered the substance which maintains the general sympathetic tonus of the body.

As regards the hormone affecting the vegetative system, there is no certainty. There may be a single substance, there may be something similar to pilocarpin, there may be many substances, since it is known that pilocarpin does not act uniformly on the autonomic system. One hormone,—pituitrin,—appears to act on certain parts of the vegetative system. An enfeebled sympathetic system, due to lack of the production of epinephrin, may allow the other system to gain the ascendancy with normal production of autonomic hormones.

Eppinger and Hess are responsible for our clinical conception of vagotonia and sympathetictonia. These are clinical pictures constructed more on pharmacological than clinical data. In a typical vagotonic individual nearly all the autonomic nerves are affected. There may be noted narrowing of the pupils from irritation of the ciliary ganglion; salivation and flow of tears from stimulation of the chorda tympani and lacrimal nerves (seventh); hyperidrosis from irritation of the cervical sympathetic; bradycardia, respiratory arrhythmia, bronchial asthma; hyperacidity and increased gastric motility from irritation of the vagus.

The group of symptoms mentioned has this

in common, i. e., they are relieved by large doses of atropin, and increased by pilocarpin. In the clinical picture are seen probably only fragments of the pharmacological aspects. These are seen more frequently what Gowers has described as vagal or vaso-vagal attacks. These manifestations are nearly all sensory or subjective. There is a sensation of distress, distension of the stomach, nausea and respiratory distress, with difficulty in "getting the breath;" there may be a sensation of fainting; there is a slow pulse, and the extremities are cold; there is flatulence, and when gas is expelled the symptoms are relieved. The stomach contents show increased acidity; there is excessive motility and spasm; there is a state of mental confusion and alarm, and that individual is ordinarily considered hysterical.

Kessel and Hyman, in a study of eighty-six patients with autonomic imbalance with leanings toward the sympathetic side, considered three groups of symptoms: first, objective due to disturbed organic function in which no lesion can be demonstrated by the most painstaking clinical examination; second, subjective manifestations; and third, such symptoms as asthenia and tremor. The constant association of these symptoms in the above groups, and their accentuation by adrenalin administration, has led these authors to regard them as having a similar origin. The following are their conclusions:

1. The cases simulate Graves' disease, but the basal metabolism is not increased;
2. Patients with this autonomic imbalance are sensitive to either atropin or adrenalin;
3. Clear-cut subgrouping of patients into vagotonic and sympathetotonic cannot be made clinically until some information with regard to the tonus of the involuntary nervous system is forthcoming;
4. Autonomic imbalance can rarely be permanently arrested; usually the symptoms can be alleviated, but the diathesis persists; hormone therapy is without foundation and is practically useless.

The pharmacodynamic method, as practiced by Barker and Sladen, is as follows: "As stimulant of the cranio-sacral or vagal system we have given pilocarpin in doses of 1-20th to 1-6th grain, and as a paralyzant of the same system, atropin 1-100th to 1-50th grain. As a stimulant for the sympathetic system, we have used 1 c. c. of adrenalin (1-1000). The pilocarpin-sensitive patient reacts with salivation, sweating, nausea, epiphora, flushing and decrease in blood pressure. The patient reacts to atropin by palpitation, dryness of mouth and throat, and precordial oppression. The epinephrin-sensitive patient

upon being given epinephrin reacts with tremor, sense of cold, rigor, glycosuria. Ten epinephrin cases also showed variable clinical manifestations; two reacted markedly to drugs which stimulated both vagus and sympathetic. Corresponding cases were found clinically. In twenty-eight instances of marked clinical vagotonic manifestations in some domain, there were eighteen with positive reaction to vagotropic drugs; in thirty-one instances of marked clinical sympathetotonic manifestations of one or another sort, there were twenty positive reactions to epinephrin injection. Estimated from this study it would seem that a conspicuous vagotonic or sympathetotonic may be a mark of pilocarpin and epinephrin sensitiveness in about 64 per cent of the cases."

Barker concludes by saying: Our studies have led us to agree with those who urge that the conception of vagotony be not too rigidly defined. We must be prepared to meet with exceptions, as yet difficult to explain, and with deviation from the pharmacodynamic reactions that might be expected. Certainly the hormones may be less elective than physiologists have led us to believe. The new conception of vagotony and sympathetotony will doubtless undergo revolution like the majority of clinical conceptions in neurology. We can now-a-days make a diagnosis of tabes, Basdow's disease, or of multiple sclerosis, even in the absence of one or more pathognomonic signs or cardinal symptoms described by their discoverers.

In conclusion we may say:

1. That the autonomic nervous system described by Langley consists of a sympathetic and a parasympathetic or autonomic system proper;
2. That these two systems are antagonistic;
3. That under normal conditions there is a perfect balancing;
4. That a weakening of one system will permit the stronger one to obtain the ascendancy;
5. That rarely are these noted clinically the typical pharmacodynamic actions identical with the reactions of adrenalin and pilocarpin;
6. That it is likely where mixed reactions are noted, certain domains of the sympathetic and certain domains of the autonomic are in the ascendancy;
7. That vagotonic individuals react clinically to treatment with atropin.

For some of the data incorporated in the foregoing paper the writer wishes to acknowledge his indebtedness to articles written by Barker, Kessel and Hyman; the monograph by Langley; and the article on the au-

tonomic nervous system in Dana's text book on "Nervous Diseases." Some of the facts are excerpted literally, others briefly abstracted.

DISCUSSION

P. F. Barbour, Louisville: I took the liberty of bringing a wad chart which may illustrate some of the pharmacological principles Dr. Baldauf has so ably described. The two branches of the vegetative nervous system are shown.

Unfortunately different schools of physiology and pharmacology have confused the nomenclature for a number of years, so that the subject has become more complicated than necessary. If one takes the term vegetative to cover the whole of the two systems, and will divide the two groups into sympathetic and parasympathetic, these terms will be universally understood.

As Dr. Baldauf has said, outside of the central nervous system, which system we have learned to associate with voluntary thought and action, lies this vegetative system which belongs in general to the unconscious processes necessary to life. The peripheral neurons of the vegetative system are separate from the central nervous system.

The principal nerve of the parasympathetic system is the vagus, which supplies the heart, stomach and intestine as far as the ileocecal valve. The chart shows the position of the two systems throughout the body and detailed description seems unnecessary. Most of the tissues of the body are innervated by both systems, as is seen, for example, in the mutually antagonistic effect upon the heart rate of the vagus nerve and the accelerans of the sympathetic system. In the case of the pupil of the eye, one muscle is innervated by one system, and its antagonist by the other. Stimulation of the parasympathetic causes contraction of the pupil, while stimulation of the cervical sympathetic dilates it.

While the scheme does not hold good at all points, the conception of sympathetic-parasympathetic antagonism is a very useful one. It is of value in correlating certain groups of symptoms, as, for example, in individuals exhibiting slow pulse rate, a tendency toward marked activity of the gastric and intestinal muscles and glands, together with a tendency of the pupils to be more than ordinarily constricted, etc. On the other hand, there is the opposite picture, the so called sympatheticotonia, in which the general tendency is in the opposite direction. So that the balance of the heart rate and the activity of the intestines under the control of these two systems, their mutual antagonism constantly acting to preserve the proper balance. When one system gains ascendancy the balance of control is modified.

But it must be emphasized that the body does not rely merely on the nerves (central or vege-

tative) for preserving such balances. Many regulatory mechanisms are chemical. Under normal circumstances, for example, the alkaline fluid of the blood is kept at a very even composition by the action especially of the kidneys and the lungs. That is one thing that tends to keep the heart rate constant, and the same thing may be said of the acid-base balance controlling various other organs. One should not follow as a fad the conception that the autonomic nervous system controls the balance of all the vegetative organs.

There is, as Dr. Baldauf has said, one gland which is very definitely associated with one of these systems, and that is the adrenal. The medulla of the adrenal is developed embryologically from the same origin as the sympathetic nervous system, and when the nerve from the celiac ganglion to the adrenal, or the splanchnic nerve, is stimulated, there is an immediate discharge of adrenalin into the blood. There is thus produced the same action throughout the body as if one stimulated the true sympathetic nerve to each particular organ.

There is no safe drug the administration of which will depress the true sympathetic nerve endings. While certain well-known drugs influence the parasympathetic system, I do not believe that pituitary has any such effect, because it stimulates smooth muscles and glandular secretions regardless of innervation. If one gives pituitary there is caused a stimulation not only of the smooth muscles which adrenalin stimulates, but of those which the latter drug inhibits, e.g., the bronchial and intestinal muscles.

The late Dr. Hamburger, who was Professor of Physiology at Gronigen, Holland, called attention only two years ago to a new type of regulative control. He distinguished between: (1) hormonal, (2) nervous, and (3) "humoral" control. This so-called "humoral" control I would be inclined to classify as hormonal control, but it is none the less important. Dr. Hamburger found that if one stimulates the heart, or the vagus nerve going to the heart, that not only is that organ slowed in action, but it liberates substances which are vagotonic in nature. It is well-known that the isolated heart may be made to continue its activity outside the body and by the use of suitable solutions can be kept beating for many hours. If one stimulates the vagus nerve to such a heart and collects the outflowing solution and injects it into the heart of another animal, the second heart becomes slowed. It is exactly as if the heart had an internal secretion. This has been shown not only in the isolated heart, but Dr. Hamburger connected frogs by the circulation in such way that he could stimulate the vagus nerve to the heart of one frog and as blood was carried around to the other frog the heart was slowed and the stomach contracted.

This conception is not wholly new, for the lib-

eration of potassium, which depresses, by vagal stimulation, was established by Howell many years ago. The potassium-calcium balance of the heart is now being carefully studied. Potassium takes the side of vagotonic action, calcium and the side of sympathicotonic action. These things are interesting and suggestive, but how far one can follow them to a logical conclusion I do not know.

The facts cited by Dr. Baldauf will be of help to those who are on the lookout for the group of symptoms described. Drugs of the atropine group are valuable for depressing the parasympathetic side, but unfortunately there is no sympathetic depressant which can be used clinically. In the last respect we are about as unfortunately located as in hyperthyroidism. Where the thyroid is hypoactive, thyroid extract may be administered, but it is difficult to do anything for hyperthyroidism outside of surgical treatment.

Cuthbert Thompson, Louisville: Dr. Baldauf had presented a subject which should be of very great interest to clinicians, and the further study of it will help us to understand many of the so-called functional diseases.

When we remember that every viscus, gland, and the blood vessel receives a nerve supply from both divisions of the sympathetic, and that the function of the nerves from these two divisions are antagonistic, and in addition either or both of these nerve supplies may be abnormal in function, we can see how easily it is for the functions of the organs so supplied to become abnormal.

I believe, with Dr. Baldauf, that the terms vagotonia and sympathicotonia are helpful to us in classification of these functional diseases, and while the symptoms of each may not always be clearly defined or may be concurrent still we can usually recognize the two broad general types.

John Walker Moore, Louisville: When we talk about sympathicotonia and vagotonia, terms that are used at the present time, we are reminded that observers before our time used the terms intestinal intoxication to convey the same meaning. I think we know about as much now about the treatment of sympathicotonia and vagotonia as the older physicians did about intestinal intoxication. We can never be certain of the clinical diagnosis of sympathicotonia; we may give a drug to stimulate the vagus nerve and it has no effect. On the other hand when the symptoms suggest vagotonia, we may give drugs to paralyze, so to speak, the vagus, yet cessation of symptoms does not occur. It is a question in my mind whether we are justified in using these terms in clinical medicine, because we cannot successfully combat the symptomatic syndrome by the administration of drugs. In one condition, namely, asthma, we do obtain a happy

result by the administration of adrenalin; there is no drug in the world that gives a more happy result.

I am very much interested in the classification mentioned by Dr. Baldauf because it is based on the newest physio-pharmacological information.

J. Garland Sherrill, Louisville: I have always been interested in physiology, although in recent years I have not been in active touch with it. Dr. Baldauf has given us a very clear resume of prevailing beliefs in regard to nervous symptoms. Particularly interesting to the surgeon is the relationship the visceral symptoms and the nervous centers. It is well known that contact of the hands or instruments with the peritoneal structures, outside of the parietal peritoneum, does not produce a sensation of pain to the patient. Nervous impulses to these structures of a certain type are carried to the centers in the sympathetic system and there reflex action occurs which induces contraction of the muscle fibers of the intestine without appreciation of the patient himself. Pressure of forceps, tugging or pulling on the mesentery does cause pain that is appreciated by the patient. This impulse is carried perhaps through the same trunks, but finally reaches the brain which makes quite a difference in the sensations experienced by the patient. Certain of the various plexuses receive impulses from the intestinal tract, and the effect of these impulses is greater when they are referred to the surface. We know there is no direct muscular control of the rectum, yet by voluntary effort through the central nervous system an individual may withhold his intestinal movement within the bounds of safety.

The classification of nervous disorders presented by Dr. Baldauf opens a new field for study among physiologists and clinicians. Undoubtedly studies along this line will prove valuable to us. The vegetative nervous system, as a matter of course, will have to be deeply investigated in connection with the nervous manifestations Dr. Baldauf has mentioned. A proper understanding of the vegetative nervous system involves a study of the physiological relations of practically every organ in the body including the glandular structures.

W. E. Gardner, Louisville: It is well understood that there are two branches or divisions of the vegetative nervous system, one set of fibers stimulating, the other inhibiting, in its action. Normally there must be some sort of balance between these two systems. As Dr. Baldauf has said, possibly many of the cases of neurasthenia, psychoneurotic symptoms and some of the vague gastrointestinal conditions that are supposed to be of nervous origin, might be explained upon the basis of an imbalance between these two systems. After all, however, it simply means what we sometimes speak of as nervousness or instability of the nervous system, terms which are

used more or less generally. I believe there are also many cases of imbalance of the glandular system of the body which are congenital, and for which very little can be done. Certain classes of cases in which there is hyperactivity and hypoactivity of the glandular structures may be mentioned in this connection, but space will not permit. In other instances remarkable results are sometimes secured by well directed therapy. I believe in essential epilepsy there is some imbalance between these two systems, and if we ever find a cure for epilepsy it will be along the line of balance between these two systems. In an early attack of epilepsy the symptoms may be sympatheticonic in nature, later in the attack the manifestations may be more of a vagotonic character.

Dr. Baldauf has given us a splendid paper on the newest ideas of physio-pharmacology of the sympathetic nervous system. The subject is so important and far-reaching that it is almost impossible for one to grasp it completely, without actually taking time to read his paper carefully, which I hope to do later.

Leon K. Baldauf, (In closing): The subject of nervous imbalance, and the various groups of symptoms which I tried to outline in my paper, has interested me mainly because quite a number of patients with definite vagotonia and sympatheticonia have been discovered by thorough examination. I think careful study of such cases will be of great benefit to us. For example, in cardiac disease such as angina pectoris the solution will probably be found in careful study of the sympathetic nervous system. This disease is so serious and its cure so uncertain that certain surgeons have advocated the radical procedure of dividing the nerve fibers leading to the heart hoping to secure relief of the pain in angina pectoris; and this plan might be successful provided the patient survived the operation.

Angina pectoris is characterized by sudden, severe pain, and as a rule the attacks develop after the ingestion of a heavy meal. The attacks can oftentimes be prevented by the administration of large doses of belladonna and certain other drugs. In the treatment of this disease I have recently given large doses of luminol with the idea of inhibiting nerve impulses to the heart, and in that way have relieved some patients and reduced the frequency of the attacks.

Vagotonia presents a rather typical clinical picture, it is not in any sense a physiological picture. During the last year I have seen twelve or fifteen such cases. The patient has a slow pulse, and when the pulse rate is below 65 we know there is something wrong. In some cases of vagotonia a pulse rate of 50 or less has been noted. Another symptom frequently present is pylorospasm. One patient now under observation has the most marked pylorospasm and spastic

constipation that I have ever seen. The ascending colon is greatly distended, as shown by the barium meal, and there is contraction of the transverse and descending colon. Another symptom is respiratory distress. The patient has a sighing respiration and complains of dyspnea.

Barker emphasizes the fact that in some instances there is not a clean-cut picture of either vagotonia or sympatheticonia, that there seems to be a mixture of both. The patient may have gastrointestinal and respiratory symptoms, and the pulse may be rapid. In such cases the probability is that some fibers of the tectal, bulbar or sacral segments are weaker or stronger than others, thus producing a mixture of symptoms.

It has been particularly interesting to note that these vagotonic cases usually respond to treatment. I have had excellent results from the administration of large doses of belladonna. Vagotonic cases are also improved by hormone therapy. The principle seems established that excessive thyroid excretion produces rapid cardiac action, and that diminution in thyroid excretion results in slow heart action. Therefore, where the pulse rate is low, in addition to belladonna, thyroid administration is beneficial. For example, I recently saw a patient with vagotonia but who had symptoms of gastric ulcer and had been so treated for a long time. His pulse was weak and the rate slow. He was given large doses of belladonna with gastric lavage two or three times a week. Later the case was recognized as one of vagotonia. Thyroid was administered with the idea of increasing the pulse rate. The result was perfectly marvelous. Some very excellent results have been secured in vagotonic cases by the combination of belladonna and thyroid.

Certain patients with vagotonia have cardiac irregularities, extra systoles, sinus arrhythmia, etc. I recall a chauffeur who was unable to operate his car because of frequent heart attacks. He had the typical syndrome, slow pulse, pylorospasm, spastic constipation and dyspnea. He recovered promptly under the combination of belladonna and thyroid. Now when he feels an impending attack, he takes a tablet of thyroid and the attack is prevented.

As to sympatheticonic cases: I believe many of these patients are classed as cranks and neurasthenics. Patients with sympatheticonia are peculiar individuals. They complain of rapid pulse and tremor, they are weak and nervous, yet a complete physical examination discloses nothing abnormal. The only difference between these cases and typical Graves' disease is that the basal metabolism is not increased. They frequently respond very well to the administration of calcium salts.

Barker is willing to concede the fact that clinical differentiation between sympatheticonic and vagotonia is sometimes difficult, and admits that in a certain number of cases there

seems to be a mixed condition. For instance, he records two cases in which pharmacological tests were made with adrenalin and pilocarpin and the patients reacted to both drugs.

I now have under observation several patients with so-called heart block, one of them having had several attacks. So long as the pulse rate remains within normal limits the Adams-Stokes syndrome is not in evidence, but when the pulse rate becomes slow he has an attack. I felt if this patient could be given a drug which would inhibit the afferent cardiac impulses, the attacks of Adams-Stokes syndrome could be prevented. Small doses of luminol were administered and the attacks ceased. I believe study of the sympathetic nervous system will solve many cardiac symptoms including angina pectoris. The heart of a patient dying from this disease examined at autopsy may show the muscle and coronary vessels perfectly normal; no pathology in the heart itself may exist.

BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 4 Number 3 (Chicago Number—June 1924,) 245 pages with 108 illustrations. Per clinic year (February, 1924 to December, 1924. Paper \$12.00; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 4 Number 4 (Cleveland Number—August, 1924,) 248 pages with 218 illustrations. Per clinic year (February, 1924 to December, 1924.) Paper \$12.00; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. Gleason, M. D., Professor of Otology in the Medico-Chirurgical College Graduate School, University of Pennsylvania. Fifth Edition, thoroughly revised. 12mo. of 660 pages, 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$4.00 net.

The fourth edition has been carefully revised and matters pertaining to diagnosis and treatment have received careful consideration. Newer methods of treatment have sometimes been substituted for older when in the judgment of the author they were better, because it was impossible to give both without sacrificing the brevity that has characterized the former editions.

The formulas in the back of the book have received the most careful attention and much new matter has been added. This is especially

true as regards local anesthetics and biologic therapeutics.

The technic of the more common operations, like tonsillectomy, turbineotomy, operations on the nasal sinuses, tracheotomy, the simple and radical mastoid operation, the Hinsberg operation, etc., have been revised and made as clear as possible.

Considerable new matter has been added to the descriptions under some of the illustrations. This is especially true of instruments, in the endeavor to include in the description those of a similar kind and state the advantages and disadvantages of each type and thus save space in the text.

NEUROLOGIC DIAGNOSIS. By Loyal E. Davis, M. D., Associate Professor of Surgery, Northwestern University Medical School; Fellow of the National Research Council. 12mo of 173 pages with 49 illustrations. W. B. Saunders Company, Philadelphia and London 1923, Cloth, \$2.00 net.

In this volume an attempt is made to present the subject of neurologic diagnosis from the viewpoint of correlating symptoms with known anatomic and physiologic facts. The presentation of case histories, in which only positive facts are given, is preceded by a brief review of various important anatomic structures. If the diagnosis of typical cases is studied by endeavoring to reach the fundamentals involved, the more common atypical symptoms may be evaluated more logically and successfully. If this book serves as a bridge between the text-book upon the anatomy of the nervous system and the clinical text of nervous diseases it will fulfil its purpose.

ESSENTIALS OF PRESCRIPTION WRITING. By Cary Eggleston, M. D. Assistant Professor of Pharmacology, Cornell University Medical College, New York City. Third Edition, Revised. 32 mo of 146 pages, Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$1.50 net.

This small volume is intended to provide the student of medicine with a succinct, yet sufficient, treatment of the subject of prescription writing. It is designed to carry him through the subject in a sequential manner, and to prepare him to construct a grammatic and proper prescription to fill any need. The work is a crystallization of the author's experience in teaching the subject, and has been prepared with a view of reducing the burden of the already overworked student. The author's greatest gratification will come from the realization that he has accomplished his purpose, even in small measure.

(Continued on Page 342.)

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NEXT ANNUAL MEETING—OWENSBORO. 1925

COUNTY SOCIETY REPORTS

Livingston: The Livingston County Medical Society met at Salem, in regular communication on May 14, for the dispatch of such business as would regularly come before it.

Members present: Drs. A. A. Casper, Hampton, T. M. Radcliffe, W. C. Davis, W. F. Gardner, Roy Waddell, John L. Hayden, John V. Hayden, Salem.

The meeting was called to order by the president, Dr. John L. Hayden, and proceeded to transact such business as would regularly come before it. As this was the first meeting of the society for this year the program for papers and discussions was not presented.

W. F. Gardner demonstrated an instrument the Sluder's tonsil guillotine, which he had added great improvements to for rapid work in removing tonsils. Dr. Gardner did a tonsillectomy before the Society for a little girl ten years old under gas ether anesthesia completing the operation for tonsils and adenoids in ten seconds, and the patient was awake in five to eight minutes. Dr. Gardner states this operation can easily be done under gas anesthesia alone, and the patient will be awake in two to three minutes. The tonsils were removed capsule in tact, and the hemorrhage very little.

It was duly moved and seconded that the Livingston County Medical Society through the proper officers take a warrant for the arrest of Dr. C. A. Northern, of Dyersburg, charging him with practicing medicine in the State of Kentucky without a certificate from the State Board of Health authorizing him to practice medicine and surgery according to law, and after having been notified by Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky to desist at once from practicing under the plains and penalties of law.

The election of officers was next in order and proceeded as follows:

For president, John L. Hayden; for secretary, W. F. Gardner. The president and secretary were both elected by acclamation.

The president's address is Salem, and the secretary's address is Smithland.

John V. Hayden and H. H. Duley were duly elected honorary members of the Society.

There being no further business to come before the Society at this time the Society adjourned peace and harmony prevailing, and selected the next meeting place for the Society to be at Smithland, June 18, 1925, at 1 o'clock p. m.

J. L. HAYDEN, President.

W. F. GARDNER, Secretary.

Scott: The Scott County Medical Society met at the Masonic Hall, Stamping Ground, April 30, at 5 p. m., with Dr. W. S. Alphin, President, presiding, and the following members present: Drs. H. H. Roberts, H. V. Johnson, S. S. Amer-son, L. F. Heath, F. C. Collins, J. C. Thomas-son, William Mason and W. B. Salin.

Minutes of previous meeting were read and approved, after which an excellent paper was read on the medical and surgical aspects of abortion, by Dr. Johnson. Discussion was opened by Dr. William Mason, of Stamping Ground, fol-lowed by a round table discussion. Next, a paper to be on Appendicitis by Dr. Knox, who failed to appear, was excellently filled in by Dr. Roberts who was to have opened the discussion and other members. This was a very enjoyable and profitable meeting.

Program arranged for next meeting, which is the last of May, for each member to have a five or ten-minutes talk or report any case he chooses, after which the meeting closed and re-tired to the Northentt Hotel where a most de-lightful dinner was enjoyed.

J. A. STEWART, Secretary.

Breathitt: The Breathitt County Medical So-ciety met in the office of Luther Bach, Jackson, on Tuesday evening April 21, 1925, for the elec-tion of officers.

The following were elected: M. E. Hoge, president, Wilgns Bach, vice-president, Luther Bach, secretary-treasurer, C. H. Hurst, delegate, Arthur Bach, alternate.

The meeting was well attended and much in-terest manifested by all in an effort to revive activities of the society and arrange for regu-lar meetings and programs. It was decided to meet regularly on the third Monday night of each month. A program and banquet has been arranged for the next regular meeting on May 20.

We are glad to report that every graduate, li-censed physician in our county are active mem-bers of the society and have paid their dues for the year.

LUTHER BACH, Secretary.

BOOK REVIEWS

(Continued From Page 340.)

OBSTETRICS FOR NURSES. By Joseph B. De Lee, A. M., M. D. Professor of Ob-stetrics at the Northwestern University Medical School; Obstetrician to the Chi-cago Lying-In Hospital and Dispensary. Seventh Edition, Entirely reset. Philadel-phia and London: W. B. Saunders Com-pany, Publishers.

In preparing this, the seventh edition of his work for nurses, the author has followed the same general lines of the previous ones, but,

permitted by the generosity of the publishers to increase both the matter and the illustra-tions he has expanded many of the subjects presented before and has added a few new ones. Accordingly, the reader will find, among others, the chapters on the Anatomy and phy-siology of the Reproductive Function en-larged. These will meet the requirements of the Board of Nurse Examiners, yet due re-gard is paid to the fact that this is a book on Obstetric Nursing and that a full present-ment of these subjects belongs elsewhere.

There is a great and commendable increase in the respect being paid the pregnant woman throughout the country, and a rounded sys-tem of Prenatal Care is being developed. Twenty-five pages have therefore been de-voted to this subject.

The importance of diet in health and dis-ease is now gaining that attention of the phy-sician which it has long deserved. Diet in-fluences the well-being of the gravida and the growing fetus and has a direct bearing on the nutrition of the newborn baby. With this in mind the chapter on diet in pregnancy has been amplified and brought up to date.

LECTURES ON PATHOLOGY, Delivered in United States 1924. By Ludwig Aschoff, M. D. Professor of Pathological Anatomy, University of Freiberg, Germany. With 35 illustrations. Paul B. Hoeber, Inc. Pub-lishers, New York. Price \$5.00.

These lectures were delivered in the spring of 1924, in part as the Edward G. Janeway Lectures of the Mount Sinai Hospital in New York, the Lane Lectures of the Leland Stan-ford Medical School in San Francisco, the Osler Memorial Lecture of the County Medical Association in Los Angeles, and a Harvey Lecture in New York.

Dr. Adolph O. Pfingst has returned from Washington, where he addressed the American Ophthalmological Society.

At the Annual meeting of the Louisville Ob-stetrical Society held at the Brown Hotel, May 25, the following officers were elected:

President, Dr. Walker Gossett; Vice-President, Dr. R. Alexander Bate; Treasurer, Dr. Frank J. Kiefer; Secretary, Dr. W. T. McConnell.



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EDITORIAL

TULAREMIA.

Since Tularemia has manifested itself in nearly every section of the United States, from the east to the west coast, it deserves the attention of the medical profession of Kentucky, and while no cases have been reported in the state, we should not be complacently careless of its menace, especially in view of the fact that Ohio and Indiana to the north of us and Tennessee and North Carolina to the south of us, have discovered its existence in various rodents, (usually rabbits), and two of these states, Ohio and North Carolina, report the disease in human beings.

At various times in the last few years hunters in Kentucky have found dead rabbits with evidence of glandular enlargement, that very likely on laboratory examination would have proven a definite Tularemia.

Dr. Edward Francis, surgeon United States Public Health Service, in the "Journal of the A. M. A.," April 25, 1925, describes this disease as "a very fatal bacteremia of various rodents especially rabbits, due to *Bacterium Tularensis*, transmissible to man as an accidental infection by the bite of an infected blood sucking insect or tick, or by the lodgment on his hands of the blood of internal organs of an infected rodent."

The synonymous terms of this disease are "plague-like disease of rodents," "Deer-fly fever," "Rabbit fever," and "Glandular type of tick fever."

Case histories as compiled by Francis, disclose two clinical types of infection, "The glandular type and the typhoid type." The glandular type is described as having enlarged glands, (regional) with a local site of infection and the typhoid type showing an absence of these, but with symptoms simulating typhoid fever. Fourteen laboratory workers doing research work have developed the disease (typhoid type) and it was not possible to determine the portal of entry of the infection, though it was presumed that blood from the infected animal under necropsy found lodgment on the hands and either penetrated the skin or found its way to the mouth and was

swallowed. A local site of infection was denied in each case. The incubation is given as probably common from two to five days.

The onset of the disease is sudden with symptoms of headache, chills, bodily pains, vomiting, prostration and fever. In cases with a definite local site of infection, the patient complains of pain about the lymph glands of the particular region infected, and these glands promptly enlarge and break down, liberating a necrotic core and leaving a distinct ulcerated site. In the typhoid type, the same symptoms predominate with the exception of the glandular involvement.

Complications are rare though convalescence is slow, sometimes extending over a period of months; only a few deaths are recorded in human beings.

The existence in human beings is demonstrated by laboratory tests (blood serum agglutination and blood culture for *Bacterium Tularensis*) and by animal inoculation. In animal necropsies all precautions should be taken to prevent infection; rubber gloves should always be worn.

LIQUOR PRESCRIPTIONS.

Physicians who prescribe liquor illegally will be prosecuted before the Federal grand juries, heretofore revocation of liquor licenses has been the only penalty invoked but after June 1, 1925, prosecutions will be directed.

Under Section 29 of the Prohibition Act, which provides a \$500 fine for a first offense, a \$1,000 fine or ninety day jail sentence for a second offense, and an unlimited fine and two year's imprisonment for a third.

And, if cases warrant, charges of conspiracy carrying penitentiary sentences, will be used to curb the misuse of liquor prescriptions.

There may be some physicians in Kentucky, "who, through negligence, violate the prohibition laws," consequently we are publishing review of revocation proceedings recently issued by the Commissioner of Internal Revenue, Mr. D. H. Blair, Washington, D. C.

On and after May 21, 1925, in revocation proceedings brought under Sections 5 and 9, Title II, of the National Prohibition Act, the decision of the assistant or agent of the Commissioner of Internal Revenue authorized to

preside at the hearing, shall be final, when rendered in conformity with Article XIX of Regulations 60, or pursuant to the authority specially delegated to him, except in the following cases:

"(1) Where the charges are sustained, and after applying in writing for a re-hearing within ten days from the date of mailing to him of notice of the decision, and being denied the same, or granted a re-hearing and denied favorable action thereon, the respondent has within thirty days from the date of mailing to him of notice of either such denial, filed with the Director, or with the Prohibition Commissioner in cases where the decision is rendered pursuant to authority specially delegated, a written notice of appeal to the Commissioner of Internal Revenue, setting forth the grounds upon which he seeks the reversal or modification of the original decision or that rendered on re-hearing. The decision on appeal in such case shall extend only to the errors of law and fact raised by the appeal.

"(2) Where the charges are dismissed and the record of the hearing fails to disclose substantial evidence warranting such finding.

"A Board of Review, the members to consist of H. W. Orcutt, Chairman, Julian Sharpnack and V. Simonton, any two of whom shall constitute a quorum, is hereby established, which Board shall, in the name of the Commissioner of Internal Revenue, and to the extent herein provided, review all hearings subject to review under these regulations, make such finding of law and fact as the case may warrant, and enter a final order affirming, modifying, or reversing the original decision or that rendered on re-hearing; and to that end the Board may from time to time adopt rules and by-laws, not inconsistent herewith, which, when approved by the Commissioner of Internal Revenue and published, shall constitute a part of these regulations.

"All regulations of this Department inconsistent herewith are repealed to the extent of such inconsistency.

"The privilege of issuing prescriptions for, and the using of, intoxicating liquors is not a natural or professional right, but a gift of Government bestowed, not unwillingly, upon the medical profession, but only to such physicians as make applications therefor. Such applications are agreements between the physicians and their Government and constitute the basis upon which permits are issued authorizing them to prescribe and use intoxicating liquors for medical purposes only, according to a fixed and definite method of procedure, of which, such physicians are advised by being furnished with a copy of the Law and Regulations 60.

"Physicians should, therefore, bear in mind

that they are conducting a Government controlled business as far as intoxicating liquors are concerned, and hence must conform to all the requirements that the Government imposes.

"A certain per cent of the physicians in this State holding Federal permits, accept in the true spirit the obligations and responsibilities imposed by such permits and recognize themselves to be the agency of Government to lawfully dispense intoxicating liquors to the people. But there is also a certain per cent who, through negligence or ignorance of the law, disregard their agreements and terms of their permits, and conduct their permitted business in a manner that violates the National Prohibition Act, and because of which it becomes necessary to employ other methods of administration.

"Previously, the prohibition officer has been satisfied to withdraw permit privileges from offending physicians by revoking their permits or withholding prescription blanks. In the future, however, in addition to the revocation of permits, all offending physicians will be presented to the Federal Grand Jury for indictment under Section 29 of the National Prohibition Act, which prescribes maximum penalties as follows, to-wit: first offense, \$500.00 fine; second offense, \$1,000 fine or ninety days imprisonment; third offense, unlimited fine and two years imprisonment; or, if the facts in any case should warrant, an indictment for conspiracy may be obtained under Section 37 of the Criminal Code, which is a penitentiary offense. Conspiracy under the Federal law is defined to be a "Partnership in the commission of an unlawful act," and any collusion between physicians and druggists to dispense liquors for other than medicinal purposes, such as a sale or gift of forms 1403, or otherwise furnishing such forms unlawfully for use by druggists in forcing balances of liquors stocks or concealing unauthorized transactions in liquors, subject either or both to the penalties prescribed for 'Conspiracy.' Likewise any collusion between a physician and his patient or other person whereby liquors are obtained and used for other than medicinal purposes either by such patient or other person, or used or shared in by the physician is held to be 'conspiracy' within the meaning of said section 37 of the Criminal Code."

We are sure that every physician in Kentucky will co-operate with our State Prohibition Director in carrying out not only the letter, but the spirit of these new regulations.

THE LABORATORY DEMONSTRATION.

The State Board of Health offered to the physicians of Kentucky a free laboratory demonstration June 1 to 6, under the direction of Dr. A. T. McCormack, State Health Officer and Dr. L. H. South, Director of the Bureau of Laboratories. Fifty physicians representing counties in the state availed themselves of this opportunity to become more familiar with many new methods in laboratory technic.

Dr. A. W. Homberger, professor of Chemistry of the University of Louisville, assisted by Mr. Louis Baer, gave a most instructive course in Blood Chemistry, which included blood-sugar, non-protein nitrogen, urea, uric acid, use of the Colorimeter and bedside determination of blood sugar by means of the micro saccharimeter. Groups including five were arranged so that each group had a personal instructor and physicians were given the opportunity to do individually each test. Printed directions were supplied showing each step of the technic and the directions for preparing the necessary solutions were given in detail. Following this demonstration, Dr. Homberger gave a most interesting and instructive lecture on Foods.

Dr. D. P. Curry, assistant chief Health Officer, Panama Canal Zone, lectured on Malaria and Mosquito Control. Dr. South and her corps of assistants demonstrated urinalysis, preparation of stains, vaccines and identification of many pathogenic organisms. The rabies demonstration began with the opening of the dog head for removal of the brain, the staining of the smear for Negri bodies, the administration of the Pasteur Treatment in man and in the dog.

Of universal interest was the malarial slide shown by Dr. Curry and the slides showing the leprosy bacillus sent to the Board from the Leprosarium, Carville, Louisiana.

This demonstration was one of the best and most practical the Laboratories have ever given and so great was the success that we are already receiving requests for its repetition next year during alumni week.

DR. HANCOCK HONORED.

Dr. Jethra Hancock has been notified by the War Department that he had been promoted to the rank of Lieutenant-Colonel in the Medical Reserve Corps of the United States Army. In 1917 Dr. Hancock joined the Army and was sent to Panama with the rank of captain. Dr. Hancock's family has been represented in every American war, a nephew also being in the World War, a brother in the Spanish-American War, two uncles in

the War between the States and grandfathers in the Mexican War, the War of 1812 and the Revolutionary War. Dr. Hancock is at present Director of the Bureau of Venereal Diseases of the State Board of Health.

PRACTICAL CHEMISTRY.

Courses covering the Practical Physiological Chemistry of Blood and Urine Analysis, Gastric Analysis, and the analysis of Bile, Feces, etc., will be offered this summer in the School of Public Health of the University of Louisville, in the State Board of Health Laboratories. The student may choose any branch of chemistry desired and will receive personal individual instruction by Mr. Louis Baer, until recently a member of the staff of the chemistry department, University of Louisville. These courses should be attractive to physicians, technicians, nurses, and students of chemistry. For full particulars call or write Dr. Lillian H. South, State Board of Health, Louisville, Ky.

THE STATE MEETING.

The date of the annual meeting of the Kentucky State Medical Association has been definitely decided by the Daviess County Medical Society to be October 5, 6, 7 and 8. Miss Owensboro will have her prettiest dress for the occasion and will be in the new hotel which will be completed in time to afford metropolitan comfort for every physician who will take the opportunity to attend what promises to be one of the best meetings of our Association.

Prevention of Syncope in General Anesthesia.—

Stronbe quotes Mikulicz' remark that every general anesthesia is an experiment, and he urges the surgeon to experiment on his own body to appreciate the difference between the smarting in the nose and the reflex action therefrom as the chloroform is inhaled with or without a preliminary 1-5 per cent. cocaine spray. He advocates spraying the nose in this way as a routine preliminary to general anesthesia. He is convinced that chloroform syncope and the like are the result of some inhibiting reflex action entailed by the irritation from the chloroform in the nose.

ORIGINAL ARTICLES

SURGERY IN BIRTH INJURIES TO THE NERVOUS SYSTEM.*

By F. P. STRICKLER, Louisville.

In this paper we will touch on two of the most common types of birth injuries to the nervous system, intracranial hemorrhage and obstetrical injury to the brachial plexus. This paper is based on experience gained while working with Dr. Royal Whitman and Dr. William Sharp, of New York City.

Let us first consider brain injuries. Injuries of the brain are usually produced by prolonged, difficult and instrumental deliveries, and occur also in haemorrhagic disease of the new-born. Forceps, however, are probably the greatest factor, the high and medium applications causing most of the damage.

A linear or depressed fracture in these cases is rarely ever shown by X-ray examinations. The trauma, as a rule, is produced by overlapping of the bones, and occurs most frequently between the parietal bones, and in this case the superior longitudinal sinus is lacerated. Similar overlapping may take place in the coronal suture and lambdoidal sutures. Here, however, it is usually the supracortical veins that are lacerated or ruptured, due to prolonged venous stasis and engorgement. The hemorrhage in these cases is supracortical and may be of any size. The degree of intracranial pressure and cerebral edema which follows depending on the size of the hemorrhage. The above mentioned overlapping of the bones may persist for several hours after birth or disappear at once. Consequently, physical examination, or X-ray examination of the head may reveal very little that will be of aid in diagnosis.

SYMPTOMS.

The baby is abnormally drowsy and stuporous, refuses to nurse, and may have convulsive twitching of various muscles. Has tense and bulging fontanels, slowing of pulse, asphyxia, inequality of pupils, etc. The diagnosis is confirmed by a positive ophthalmoscopic examination, and still further confirmed by bloody spinal fluid obtained at lumbar puncture. The normal spinal fluid pressure as registered by the spinal mercurial manometer is 4 to 8 m.m. in children, 5 to 9 m.m. in adults. Dr. Sharp considers a pressure of 15 m. m. associated with a bloody spinal fluid, and the above mentioned symptoms as positive proof of hemorrhage.

Dr. Sharp recently performed lumbar puncture on a series of 100 consecutive deliveries at the New York City Hospital, doing his punctures within the first 24 to 48 hours after birth. He found that 13 per cent of

these had a varying degree of intracranial hemorrhage. So judging by these figures, this condition is not so very rare. In some cases, however, nothing abnormal is noted in the child until it begins to walk. Then the symptoms of Little's Disease, or spastic paraplegia and diplegia are noted.

TREATMENT.

Repeated daily lumbar punctures, removing 10-12 c.c. of fluid until the fluid pressure by spinal mercurial manometer does not exceed 10 m. m., and remains stationary at this point. These punctures are done by the use of an ordinary antitoxin hypodermic needle through the fourth lumbar interspace, the child's back being held flexed by an assistant. When the child becomes quiet the manometer readings are taken. Often the spinal drainage will be all that is required, but in those cases where the symptoms persist and the pressure continues high, a right subtemporal decompression is indicated.

The incision is made vertically upward through the scalp from a point just above the zygoma, and 1-2 inch anterior to the external auditory meatus, and is parallel to the fibers of the temporal muscle, thereby giving a better and stronger closure. The decompression is made through the squamous portion of the temporal bone in the usual manner, bone wax or small pieces of muscle being used to control hemorrhage from the bone. This step being very easy in the infant.

The dura is opened in the usual way, tying the vessels with silk before they are cut, or using the No. 24 silver wire clips devised by Dr. Sharp. A small rubber tissue drain is inserted beneath the temporosphenoidal lobe draining the middle fossa of the base. This drain being usually left in place 24 to 48 hours. All hemorrhage having been controlled, the temporal muscle is sutured with No 1 plain catgut sutures, subcutaneous structures are sutured with interrupted catgut, also interrupted silk sutures for the skin, and dressings applied. Drainage can also be established through the squamo-parietal suture line, but is not advised, because of the proximity of the motor areas, and poor drainage facilities.

Let us next consider obstetrical injury to the brachial plexus. This injury is also the result of prolonged, difficult labor and is caused by traction on the head or arm, bending or twisting of neck during delivery. Out of a series of fifty-six reported cases, 78 per cent followed head presentations. Twenty-two per cent followed breech presentations. In this series 70 per cent of the paralysis was on the right side, 30 per cent on the left side. The injury may be bilateral, but usually involves only one side. The cause of the

*Read before the Bourbon County Medical Society.

injury is either laceration of the nerves, stretching of the nerves, followed by temporary paralysis, hemorrhage into the nerve sheaths, followed by scar tissue and pressure on the nerves.

In a series of 102 cases, the 5th and 6th cervical nerve roots were involved 62 times. The 7th cervical nerve root 21 times, and the 8th cervical root and 1st dorsal root 19 times. From these figures, we see the 5th and 6th cervical nerve roots are the most frequent site of injury. The type of brachial paralysis depends largely on what nerves are involved. Here we will deal with the upper and lower arm types.

Injury to the 5th and 6th cervical nerve roots produces the upper arm type of Erb's paralysis, and usually occurs in head presentations. Here we have paralysis of the deltoid, supra and infraspinatus, biceps, coracobrachialis, part of the pectoralis major, and supinators of the forearm. The deformity produced by the upper arm type is inward rotation with pronation of the forearm. The shoulder loses power, abduction and external rotation. The forearm has lost the power of flexion.

The lower arm type of brachial paralysis does not occur very often alone. But as a rule, in combination with upper arm type. This is due to the fact that the injured nerve roots which produce it are as a rule, the 8th cervical nerve root, 1st dorsal nerve and occasionally the 7th cervical nerve root. These nerve roots are the least involved, due to the fact, that a great amount of tension is only put upon them in breech presentations. However, when tension is put on these nerve roots in this position it is usually so severe that the 5th and 6th cervical nerves are involved to some extent also. In the lower arm type it is the hand and a few of the muscles of the forearm that are paralyzed. Associated with the brachial plexus injury, there may be also a dislocation of the shoulder. This, however, could not be considered as producing the injury to the nerve roots.

TREATMENT.

The treatment of these cases is conservative and operative, taken up in the order mentioned. In early cases absolute rest until swelling and sensitiveness have disappeared. Then reduction of dislocated shoulder if it exists, followed by stretching of the contracted parts which we find in old cases, but rarely in early cases. Support the arm by splints or plaster of paris in the "waiter position" of abduction at the shoulder. Slight flexion and supination at the elbow. This is followed by systematic movements of the arm and shoulder through the normal range, accompanied by the usual physiotherapy. A certain amount of recovery may occur in early

cases, depending, however, on the type and extent of nerve injury. In old cases very little outside of improvement in the deformity may be expected. Surgical repair of injuries to the brachial plexus is done at the ages of from one to three months. The more severe the paralysis, the earlier the operation. Early operation insures more perfect nerve union. There is less scar tissues, less resection of nerve tissue, also less retraction of the nerves, and the nerves are more easily found. The plexus is approached by a transverse skin incision in the posterior triangle space of the neck 2 c m. above, and parallel to the upper margin of the clavicle about 4 cm. long, with the external jugular vein at about the center point of the incision. The vein is either ligated or pushed aside. By blunt dissection the deep cervical fat sternomastoid and omohyoid muscles are pushed aside, exposing the deep cervical fascia which overlies the plexus and scalenus muscles. The deep cervical fascia is usually thin and the plexus can usually be seen through it. The transverse process of the sixth cervical vertebrae is used as a landmark, as the junction of the fifth and sixth nerve roots is at this level. The suprascapular nerve is located just external to the junction of the fifth and sixth. It is very important not to injure this nerve, as it controls the external rotators of the humerus. Then the seventh and eighth cervical and first dorsal nerve roots are located by carefully dissecting away the surrounding scar tissue.

The stumps of the torn nerve roots are resected with a knife until the normal nerve fibers are exposed. The nerves are then sutured with fine waxed silk sutures, end to end and sheath to sheath, using about three sutures to the nerve. If the shoulder is elevated and the head inclined to the injured side, the nerve stumps are brought closer together and the suturing is made easier. Hemorrhage is controlled, the overlying structures are approximated by several catgut sutures and the skin closed without drainage. Sterile dressings are applied with the arm raised over the head, with the hand over the opposite ear. This position is comfortable, and absolutely prevents traction on the sutured nerve ends. The position is maintained about three weeks.

In older cases where it is not practical to suture the brachial plexus, Dr. Kleinberg, of New York, with whom I was associated in this work, has devised an operation which corrects the deformity very well, and gives the patient some little motion. He dissects free the capsule of the shoulder joint from the humerus, places the arm in the "waiter position" of abduction at the shoulder, with flexion and supination at the elbow, and resutures the capsule with the arm in this posi-

tion. A plaster paris shoulder spica is applied in this position, which the child wears about eight weeks. The spica is followed by a splint which maintains the above position and permits massage with active and passive motion. This operation secures very good results, so far as the deformity is concerned. The opportunity for muscle transplantation in these injuries is very limited, and yields poor results.

The diagnosis of the above mentioned conditions can be fairly easily made and a large number of these cases yield to proper surgical treatment, thereby salvaging a number of children, and restoring them to a useful life, where otherwise, they would be compelled to pass through life as hopeless cripples.

NON-SURGICAL CONSIDERATION OF GASTRIC AND DUODENAL ULCER.*

By E. FAUBEL HERZER, Louisville.

Probably a better title for my subject could be obtained were the words gastric and duodenal ulcer reversed to read, duodenal and gastric ulcer, or, better still, if the term peptic ulcer were employed to designate both. The reason for such transposition is quite obvious when we consider the relative infrequency of gastric ulcer as compared to ulcer of the duodenum.

Gastric ulcer has been recognized for several hundred years and the term gradually became indelibly impressed upon medical thought and literature. However, it is only within the last hundred years that duodenal ulcer has been known to exist. In more recent years case reports show a great preponderance of duodenal ulcer. From 3060 operatively proven cases of peptic ulcer Smithies, who obtained much of his material from the Mayo Clinic, reports 72 per cent duodenal and only 28 per cent of the gastric variety. Similar reports have been made by many observers with even a greater percentage of duodenal ulcer. Very recently I had occasion to discuss the subject with Fugate & Enfield of Louisville, and their large X-ray experience of peptic ulcer is that only about 3 per cent is of the gastric type. The possibility that geography or climatology might exert some influence in such a preponderance, suggested itself. During the past year every one of 12 cases of peptic ulcer in my practice showed the duodenum to be the ulcer site.

The diagnosis of peptic ulcer, despite the opinion of some who believe that it can frequently be made from the history of the patient, is not always easily made. In the opinion of Smithies, not more than one-half of the patients who are being non-surgically

treated for peptic ulcer in the majority of hospital services are actually affected with the ailment. Moynihan in 1920, stated that in more than half the number of cases in which diagnosis is made in everyday practice and by ordinary methods, it is inaccurate.

The radiographic method of diagnosis in the hands of the expert is the most certain and it is certainly the one to be employed in every case. Cole enthusiastically states that gastric ulcer can be diagnosed as definitely by X-ray as a fracture of an extremity and if properly employed is far more accurate for ulcer than the Wassermann test for syphilis. Possibly this is rather a dogmatic statement but the fact remains that a positive diagnosis cannot be made without the aid of X-ray.

In the consideration of prognosis, treatment, and results there exists such a wide diversity of opinion that it is impractical to attempt other than a brief outline. Mayo states that the prognosis is good, about 90 to 95 per cent recovering under medical or surgical treatment. Nielson believes that the prognosis depends upon duration of the ulcer. He obtained complete recovery in 60 per cent of cases where symptoms existed less than 1-2 year, in 20 per cent of cases with symptoms of 3 to 5 years' duration, and in a very small percentage of cases of longer standing. Forty-eight per cent of all Smithies' cases had previously experienced four or more so-called ulcer cures. There exists a more common opinion in that most cases of peptic ulcer complicated by hematemesis or melena are, few exceptions, immediately or potentially surgical problems.

Probably one of the greatest difficulties in the viewpoint of the practitioner who too the non-surgical treatment of peptic ulcer is often sees only the ulcer itself and endeavors to empirically heal it by means of a definite formula. We do know that in most cases there exists a definite hyperacidity, and that this hyperacidity undoubtedly does retard healing in some cases, but we also know that many ulcers have healed in an acid medium. It is, therefore, not scientific to regard the entire management of a case as a simple effort to neutralize the free hydrochloric acid content of the stomach.

The evidence of various observers indicates that in peptic ulcer one is dealing with a form of general systemic disturbance in which the ulcer itself is only a local manifestation. Smithies compares such lesions to herpes accompanying pneumonia or intestinal ulcers of typhoid. Chronic ulcers are compared with varicose leg ulcers, lesions of the kidney, or sclerotic plaques on the aorta. I feel sure all of us can recall cases which did not respond to the usual methods of treatment, cases in which we felt that there was an

underlying cause, and upon discovery and removal of this cause we effected a cure. The possibility of foci of infection should always be borne in mind and searched for. They may be found in the gall bladder, appendix, kidneys, etc. Peptic ulcer may follow some acute infectious disease such as tonsillitis or influenza.

The local treatment of the ulcer resolves itself in the more commonly employed methods, into two parts namely dietetic and medicinal. The diet always very light at the beginning of a course of treatment in order to rest the digestive apparatus, consists of bland foods which produce very little mechanical irritation and excite very little stimulation of gastric secretion. The medicinal treatment is directed either toward an effort to neutralize the normally acid medium of the stomach or to decrease peristalsis.

Of all non-surgical methods of treatment the one most frequently used is that of Sippy. Many of the other plans are simply a modification of this one, which essentially consists of the feeding of milk and cream every hour from 7 A. M., to 7 P. M., with the alternate administration midway between each feeding, of a powder of heavy calcined magnesia and sodium bicarbonate, with a powder of calcium carbonate and sodium bicarbonate. For the first two days but 1-2 oz. each of milk and cream is given, then the amount is gradually increased and other articles added so that by the second week the patient is daily receiving 36 oz. of equal parts of milk and cream, 2 to 4 soft boiled eggs, and 2 to 4 oz. of a cereal, such as cream of wheat or Farina. This treatment is continued for a year or more, vegetable puries, creamed soups, jellies and custards being gradually permitted.

Smithies, for the first few days, gives by mouth only water, orange juice and the juice of grapefruit. During this period enemas of alcohol, glucose and normal saline are given every four hours by the drip method. Ten drops of tincture of opium is given with the enema. As the feedings by mouth are gradually resumed, the enemas are reduced and discontinued on the fifth day. The articles of diet are gruels, barley water, zwieback, butter, milk, puddings, custards, puries and eggs. This plan is continued for 6 or 7 weeks.

The Lenhartz schedule on the first day permits 200 c.c. of milk and 2 eggs. These are gradually increased and other articles added so that at the end of two weeks sugar, milk, raw chopped meat, raw shaved ham, zwieback and butter are also given. This dietary shows a rather large relative amount of protein. Bismuth in 20 to 30 grain doses is administered two or three times a day.

Coleman recommends glucose-salt enemas

throughout a period of 3 or 4 weeks, giving only water by mouth during the first 3 to 5 days. The only foods permitted are olive oil, butter fat, white of eggs and later yolk of egg and cream. Specially selected foods only are allowed for many months. Coleman reports satisfactory results over a 12 year period.

Hardt and Rivers of the Mayo Clinic, positively demonstrated toxic manifestations of the alkalis during the courses of treatment of some cases of peptic ulcer by the Sippy method. They showed production of a definite nephritis as evidenced by the appearance of albumin, casts and red blood cells in the urine. Utilizing this knowledge, Shattuck and Rohdenburg investigated the action of tertiary calcium phosphates and found that magnesium and calcium phosphates in 15 grain doses could be given hourly as a substitute for Sippy's drugs without developing an alkalosis or producing renal injury.

Frick advocates a treatment without alkalis. He endeavors to avoid all articles of diet which stimulate gastric secretion, allows a very high fat diet, and reduces salt to a minimum. The drugs administered are bismuth subnitrate and opiates. In 700 cases he is convinced that in the average case alkalis need not be given.

Twelve cases of peptic ulcer came under my observation during the past year and all were of the duodenal variety. Seven were males and five females. The average of the male patients was 46 years, ranging from 28 to 67. The average time duration was 3 1-2 years, ranging from 3 months to 10 years. The average age of the female patients was 44 years, ranging from 19 to 75. The average time duration was 7 years, ranging from 4 months to 20 years.

One patient refused to co-operate at the outset, and another became discouraged after a few days, so these cases should not be considered. Of 10 cases, 2 were associated with pulmonary tuberculosis and are only partially benefitted. In these cases very little attention was directed to the ulcer. Three were in all probability caused by gall bladder infection and general attention was directed to this organ. These cases have had no symptoms for a number of months. One case did very well for several months, but then developed symptoms of obstruction and went to operation. A healed duodenal ulcer was found, also a lymphoblastoma of the ileum, a rather rare condition. One patient died, the woman of 75. Her ulcer was associated with cardio-vascular renal changes and practically no attention was directed to the duodenum. Death was due to pulmonary edema. Five cases in all are symptom free at present and

I expect them to so continue.

Some form of alkali treatment for the local condition was used in 7 cases, with more or less of a modification of the Sippy diet. I recall that no two cases were treated exactly alike, conditions arising which necessitated a departure from a regular routine. The alkalis used were heavy calcined magnesia, sodium bicarbonate and bismuth subcarbonate. Tincture of belladonna was not infrequently employed in doses of from 5 to 10 minims to relieve carido-spasm.

SUMMARY.

1. Treatment for peptic ulcer should be general and local.
2. Cases with important complications do not respond to treatment.
3. The alkali treatment of peptic ulcer should not be discarded.

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In 250 necropsies, S. M. Cone (*Journal A. M. A.*, June 6, 1925), found bone marrow filling the intercostal veins in sixty-eight cases. Age or sex had no influence. Twenty-eight were in chronic passive congestion cases from cardiovascular disease. Typhoid in young persons, caused death in four cases; acute infections, in eight cases; cancer, in six cases; exophthalmic goiter, hydrophobia, amebic dysentery, Addison's disease and Hodgkin's disease, in one case each. The marrow in the veins was seen not only in the large vein but also in smaller branches on the flat sides of the rib. It corresponded in appearance exactly with the appearance of the marrow in the rib—fatty, cellular or fibrous. In one case, in which there was new bone formed in the rib, there was bone in the marrow filling the intercostal vein. In all the cases the bone showed vital and lacunar absorption, and the marrow was altered. In a few cases there were myelocytes and giant cells in the lung capillaries.

ANALYSIS OF ONE HUNDRED OBSTETRICAL CASES.*

By SCOTT D. BRECKINRIDGE, Lexington.

With the larger clinics reporting their cases in series of one thousand, or more, and basing their statistics upon many thousands, some explanatory preface is called for when one dares to present so small a series as one hundred cases. The justification for the present series lies in the fact that it may be considered a "freak" series insofar as the disproportionately large incidence of certain complications is concerned and that, as the records of private cases from the more or less sheltered classes, the results are more nearly indicative of what each of us may expect in his private practice than are figures based upon large charity services.

The cases from which the records here presented are drawn were consecutive, within certain well defined limits, were largely delivered in our local hospitals and may be considered as fairly representative of the problems presenting in private obstetrical practice. The only limits placed upon the consecutivity of the cases were the requirements that they should be private cases under sufficiently extended prenatal observation to permit a fair knowledge of the antepartum course. This stricture eliminated all consultation, ward and emergency deliveries.

The routine antepartum care has consisted in bi-weekly office visits during the first six or seven months of pregnancy, the interval being shortened to ten days during the final two or three months. During the earlier cases, the supervision consisted in the routine examination of the urine and the taking of the blood pressure. With the later cases, a careful supervision of the weight gain was inaugurated. Of course, constant watchfulness for symptoms significant of beginning or progressing toxemia was maintained at all times. At from four to six weeks before the estimated date of confinement, the routine antepartum examination was made, an endeavor being made to determine the position of the child, the size of the maternal pelvis and the relative size of the foetus as related to the maternal pelvis. In cases presenting symmetrical pelves, with good measurements and without large foetus, only five measurements were taken—the interspinous, intercrural, right and left oblique and external conjugate diameters. Where these conditions did not exist and further knowledge appeared desirable for any reason, additional measurements were taken, including the transverse and the anterior and posterior sagittal of

the outlet, the oblique conjugate and estimation of the true conjugate. During labor, the endeavor has been to reduce internal examinations to the minimum and to never interfere with the course of labor except upon positive indication upon the part of the mother or child.

In this series, there were one hundred mothers and one hundred and one babies. Under the head of antepartum complications, there were fifteen cases of mild toxemia, as evidenced by a steady and persistent rise of the blood pressure more than 10 mm. Hg., with accompanying evidence of kidney change; eleven cases of moderate toxemia, as evidenced by a steady and persistent rise of the blood pressure more than twenty mm.—approaching or passing the arbitrary danger point 140 mm., with accompanying evidence of kidney change; and two cases of advanced toxemia, as evidenced by a continued and persistent rise of the blood pressure to or near 160 mm. Hg. (the ordinary low point for eclamptic convulsions), with accompanying evidence of marked kidney change and one or more of the subjective symptoms significant of toxemia. There were also six cases of pyelitis; two cases of arterial hypertension, without other evidence of toxemia; one case of kidney involvement, without other evidence of toxemia; and two cases of missed abortion, one of two months and the other of four months' duration, foetal death in both cases occurring at about the end of the fourth month of gestation.

Of the deliveries, seventy-five were spontaneous and twenty-five were operative. The operative deliveries were: low forceps, 4; mid-forceps, 11; high forceps, 2; floating forceps, 0; versions, 0; breech extractions, 4; and celio-hysterotomies, 5. Analysis of the indications for operation show that, of the 11 mid-forceps deliveries, eight were for persistent posterior position and were preceded by preliminary manual or instrumental rotation of the head: that the two high forceps were applied for dead fetus and (2) maternal exhaustion, persistent posterior position and large baby, 9 lbs. and 12 oz.; that the breech extractions were all in cases of frank breech presentation; and that the five celio-hysterotomies were upon the following indications: (1) prolonged, inefficient, induced labor, generally contracted pelvis, disproportionately large foetus (8 lb.); (2) prolonged labor (36 hr.), with maternal exhaustion and non-engagement of the foetal head; (4) 18 hour labor without engagement of the head of dilatation of the cervix in post-mature infant with abnormally large head, and (5) elderly primigravida, prolonged labor (40 hr.), non-engagement of

foetal head, moderately marked maternal toxemia. Certain of these cases may appear to need somewhat further analysis. The number of operative deliveries in posterior cases would appear to indicate that all posterior positions were subjected to this interference. Such, however, was not the case, the actual incidence of posterior occipital positions being seventeen, of which eight rotated spontaneously and one delivered spontaneously in the posterior position. These are in addition to the one delivered from the high position. One of the celio-hysterotomies will also bear somewhat more extended study. This is No. 4. In this case, the patient was then under the prenatal supervision of her family physician but the usual prenatal examination was made by me. After this examination, the physician was informed that the head was considerably large for the maternal pelvis at the estimated date of confinement. The patient was permitted to go two weeks beyond this estimated date. It was not expected that she would deliver herself, but she was given an eighteen hour test of labor. It is believed that all frank breech cases may be considered operative from the time that diagnosis is made, the only question being when interference shall take place.

There was no maternal mortality. In the spontaneous deliveries, there were nine cases of morbidity in seventy-five deliveries—an incidence of 12 per cent. All patients having a temperature of 100 degrees F., on two successive days are included in the morbidity figures. Of those mentioned above, the following were definitely extra-pelvic: (1) Right mastitis developing on the ninth day; (2) Upper respiratory infection developing on the 14th day; and (3) right mastitis developing on the 17th day. In addition, there were two cases of thrombo-phlebitis developing on the 13th and 16th days after a previously afebrile puerperium. There was one patient who went into labor with a temperature of 101 degrees F., from undetermined cause. This gradually subsided during the first three days post-partum. Of the remaining three cases, one was an acute elevation of temperature to 102 degrees on the 8th day, with subsidence within 48 hours, no cause being found, and the other two are represented by successive pregnancies in the same patient within about a twelve-month. Both deliveries were spontaneous and a fever of a little over 100 degrees appearing on the sixth day after the first confinement, and a definite salpingitis after the second delivery. Among the operative deliveries, there were 8 cases of morbidity—an incidence of 32 per cent. One of these was a respiratory infection, with which the patient was admitted to the hospital before labor, and another a late right mastitis on the 14th day.

Two of the remaining cases were in frank breech extractions, with third degree tears, in which the temperature was about 100 degrees for two days each. The others were all low grade fevers of short duration, such as might be considered more traumatic than true infections.

The infant mortality figures include all cases in which the foetus or baby died, either prenatal or postnatal up to the fourteenth day. Among the non-operative cases, there were seven infant deaths among 76 infants—a mortality of a little over 9 per cent. These include two missed abortions, one hydrocephalic, premature infant and one anencephalic monster. Of the remaining three, one was the second premature twin in a mother in whom labor had been induced for pre-eclamptic toxemia; the second was an apparently normal foetus which died during the last week of pregnancy; and the third was an apparently normal infant, with primary oligopnea, which died about twelve hours postnatal. Among the operative deliveries, the gross foetal mortality is five cases—or 20 per cent. Of these, two were dead before effort was made to deliver; one, delivered by celio-hysterotomy, died about sixty hours postnatal from undetermined cause; and two were lost during the course of delivery as a definite result of forceps compression. This would make the mortality definitely due to operative measures 8 per cent.

The operative incidence in this series appears excessive. Yet, in reviewing the indications and results, it is felt that a change would be made in only two of the operative cases in the light of after-knowledge. Two of the babies that were lost as a result of forceps compression could have been saved by celio-hysterotomy. Such a high operative incidence will probably never again occur in an unselected series in my own practice, a superficial and hurried study in a subsequent series showing about one-third as high an incidence.

This series appears of particular interest to me on account of the large number of occiput posterior positions (18 per cent); on account of the large incidence of moderate and advanced maternal toxemia (13 per cent); on account of the unusually large number of frank breech presentations (4 per cent); and on account of the appearance of two cases of recognized missed abortion in such a small series.

ENDOCRINES.*

By H. K. OSBURN, Owensboro.

There is probably no subject in medicine that is attracting more wide-spread attention than organotherapy. It is today the most conspicuous feature of modern medicine and is more supported and furthered by research in physiology and applied therapeutics than any other topic pertaining to current medical literature. Scientific men all over the world are studying its merits.

Modern organotherapy had its real birth-date on June 1, 1889, when Brown-Sequard delivered his famous lecture before the Biological Society of Paris, which has served to stimulate research by profound students of physiology and clinical medicine, which shows its value by having endured from that time to the present day. It was then he announced the results of testicular extracts in his own person. When this announcement was made he was 72 years of age, and stated that these extracts produced remarkable increase in physical strength and mental activity. "Appetite, intestinal and other bodily functions were all beneficially affected, the sense of physical well-being heightened and his ability for application to intensive work greatly increased."

In a paper by Brown-Sequard and D'Arsonval in 1891 they admitted "that each tissue and, more generally, each cell of the organism secretes on its own account certain products or special ferments, which, through this medium influence all other cells of the body, a definite solidarity being thus established among the cells through a mechanism other than the nervous system. All the tissues (glands or other organs) have thus a special internal secretion and so give to the blood something more than the waste products of metabolism. The internal secretions, whether by direct influence or whether through the hindrances of deleterious processes, seem to be of great utility in maintaining the organism in its normal state."

Prior to this real beginning, Thomas Addison, in 1855, as a result of clinical and pathological observations, described the disease now known by his name as due to destruction of the suprarenal glands. The clinical, pathological and experimental physiological investigation has increased enormously since 1889, until today no phase of modern science or Biology receives greater attention.

Today the internal secretions are regarded as a means of maintaining a harmonious interaction between various cells, tissues, or-

*Read to the Daviess County Medical Society.

gans and parts of the animal body. While it is conceivable that an internal secretion might be furnished by all tissues and by each cell of the body it is probable that only those specialized tissues making up the internal secretory organs give rise to substances which in course of organic evolution have become a definite and fixed part of physiology. The organs which are thus classified as giving definite internal secretions are the Pituitary, Thyroid, Parathyroids, Adrenals, Gonads, insular part of the Pancreas and the Duodenum. Those having an internal secretion about which less is known are the Prostate, Spleen, Kidney, Liver, Mammary and Pineal.

"By internal secretion is meant those specific chemical substances which are secreted by special glandular or other tissues and passed into the blood or lymph, and which influence the functional activity, growth or development of other distant organs. These substances are specific for each one of the endocrine organs. The classification of a structure as an endocrine organ is not dependent upon the presence or absence of epithelial gland tissue, for, although this is the rule, some structures, such as the posterior lobe of the pituitary and the adrenal medulla are not glandular or epithelial and yet are considered as giving rise to an internal secretion."

The characteristic chemical effects of the internal secretions are generally considered to be brought about by two methods, "direct action of these substances on the cell metabolism itself and through the medium of the vegetative nervous system." Epinephrin exerts its characteristic effects by its action on the myoneural junction of the vegetative nerves. This junction is composed of a special receptive substance and, therefore, through stimulation of the sympathetic part of the vegetative nervous system. Pituitary extracts, on the other hand, directly stimulate the smooth muscle itself, as is the case with the thyroid, which directly affects all cell metabolism, although it is believed to act in sensitizing the myoneural junctions for the action of other internal secretions.

The hormones act first directly on cell metabolism. This action may be general and affect the metabolism of all cells, as in the case of the thyroid, or specific and affect only certain types of cell, as by the pituitary. Most hormones are of the latter type. Overton has shown that specific permeability of cell membranes is in large part dependent upon the lipoids of the plasma membrane surrounding the cell, and hormone may depend upon its ability to penetrate this membrane. Hormones may, therefore, be selective for certain cells by reason of their permeability for the cell

membrane, by the rate of their diffusion, etc.

Organotherapy is a very ancient system of treatment. At first very crude, it gradually acquired some scientific basis, so that at the time of Brown-Sequard's experiments it was not wholly irrational. The internal secretion theory and the development of purely physiological investigations have led to the employment of gland substances in therapeutics to promote mental and physical growth and development which enables us to influence a change of physiological function and thus modify the course of disease. It has been suggested that this is the way in which the body effects the necessary changes. A prerequisite to rational application is some knowledge of the mechanism of organotherapy, which may be stated as follows:

First substitutive. In this there is an introduction into the organism of specific substances formed by the gland in normal physiology—that is the administration of products substitutes for lessened or faulty secretion of the affected gland. "Some doubt has been thrown on the question of pure substitution therapy, and it has been held that the effects are always produced through the mediation of the organ in the animal. While this may be true in most instances, there are undoubtedly some instances of purely substitution effects—effects which are produced immediately and directly. Insulin effects in diabetes are of this kind, as well as ovarian therapy for abnormal conditions following the menopause.

Second, Homostimulation. Homostimulative properties of organotherapeutic substances are, in all respects, the most valuable of their actions. Hallion well expresses it in his law, as follows: "Extracts of an organ when injected into the body exert a stimulating influence on that same organ." At the present time it is generally accepted. Hoskins says: "There is some definite evidence in its support, but the extent of its applicability remains for future determination." Some hold that organotherapy is effective only through its action in stimulating the homologous organ." This is supported by the generally ineffective use of gland extracts in relieving symptoms of total ablation as opposed to the successful results in states of partial insufficiency. Biedl says: "On the whole practical experience has confirmed the deductions drawn from theoretical considerations that organotherapy produces the best results in cases in which there is a partial defect of the endocrine function in one direction or the other." Here, where there is a slight lack of hormones, a satisfactory therapeutic action can for the most part, be obtained. This may be due, not to the quantitative compensation of the lacking hor-

mones, but possibly also to the fact that the partially insufficient hormone organ itself is stimulated to increased function."

The homostimulative effects have been proven in a variety of ways and in many of the endocrine organs. Hallion refers in the following way to the thyroid:

"Thyroid extract contains a variety of specific substances. These are independent of the colloid material, the substances which only the thyroid can manufacture and which it utilizes to build up its own protoplasm or manufacture its secretions. When these substances are introduced into the circulation, it seems as if the thyroid recognizes them; it takes hold and utilizes them—since they are received already made up—either to repair its own structures or to help it functionate."

Halsey has the following to say:

"Thyroid therapy exerts a so unmistakably favorable effect on goiters (other than those of hyperthyroidism) that it has been extensively used both for therapeutic purposes and especially during an earlier period, as a method of testing the activity of different thyroid preparations. The demonstration that thyroid therapy in particular and of organotherapy in general, for it furnishes the proof that ingested thyroid substance can exert a curative influence on a diseased thyroid."

If in a child the thyroid extract is not entirely absent, thyroid treatment may be given for a time to stimulate the gland to increased activity, and the dose of thyroid extract may then be much diminished.

The results of many experiments have been adduced to prove the truth of the selective action of these gland substances for the same organ in the animal. Bell observed distinct changes in anterior pituitary following the administration of this substance. He says: "With regard to the experiments carried out with the extract of the anterior lobe the only definite changes noted were in connection with the anterior lobe of the pituitary, which strangely enough showed evidence in all cases, of abnormal secretory activity. "Other observers have obtained similar results, and reported the same for other organs, as the suprarenal and gonads.

The mechanism of homostimulation seems to be dual; first, a stimulation, then an actual rebuilding of the affected organ. The first of these processes has an analogue in the circulation of the bile. Bile salts are reabsorbed from the intestine and are again taken up by the liver (and only by the liver) and are the most effective chologogue known. In like manner the hormones selectively stimulate the organs which produce them.

The action of organotherapeutic extracts, in assisting in the restoration of an injured

organ, is readily elucidated and well stated by Hallion, as follows: "It seems as if organotherapy, by supplying to a diseased organ the structural material from which the organ is made may give the organ a chance to recuperate without too much output of energy." Or it may be that mere substitutive action in relieving an overfunctioning and partially damaged organ from some of its work, might permit the restoration and regeneration of the organ. It seems more probable that in offering the particular amino acids, proteins and complexes which are necessary for the building of particular tissues the organs are spared the synthetic effort required in the case of utilizing unlike proteins. This is an established principle of general physiology.

Mae Leod makes the following statement: "The protein molecule is broken down into its ultimate building stones, the amino acids, by the digestive enzymes of the gastrointestinal tract. These amino acids are absorbed into the blood, by which they are carried to the various organs and tissues, which sift out the amino acids and use those of them which they require for the reconstruction of their broken down protein. The amino acids not required for the process along with those which may be liberated in the tissues themselves by disintegration of the tissues, are then split into two portions, one represented by ammonia and the other by the remainder of the amino acid molecule. The former is excreted as urea and the latter is oxidized to produce energy."

Third, Symptomatic. "In this type advantage is taken of well-known physiological and pharmacological actions of endocrine substances. In the case of some (adrenalin, pituitrin, etc.) this is well known and the substances are employed for the attainment of specific pharmacological actions in the same manner that drugs and other chemical compounds are used."

Fourth, empirical. "Empirical organotherapy is based solely upon the knowledge that the administration of certain gland substances or combinations exercises a favorable action upon a clinical syndrome. Such uses may be without explanation by our limited knowledge or may even be in discord with some of our most firmly fixed theories. These uses arose in actual clinical experience, and the sole factor in establishing them has been that they are successful. Many conditions of unknown etiology and pathology, which may or may not be endocrine in origin, respond to treatment by organotherapy."

Fifth, Hormone therapy by reciprocal action. This is founded upon the interdependence of the endocrines and includes such

measures as the treatment of amenorrhea by pituitary and thyroid. Here, therapy is directed not toward the gland which plays the most important part in the clinical picture, but to another gland in the same chain which acts as an intervening factor in bringing about the effect, or produces physiological effects which compensate for those of the affected organ. Beautiful results are often brought about in this way.

Sixth, Protein therapy effects.

"Borchardt and others have suggested that some of the effects noted in organotherapy may be due to the therapeutic action of the protein bodies. Certain physiological reactions produced by organotherapy seem almost certainly to be of this type which may be rather common in cases of parenteral introduction of the gland substances. Many extracts such as pituitary and adrenal increase immune reactions. These effects are general and not limited to particular organs or tissues, and are due to a general protoplasmic activation. Biedl limits protein therapy effects to those produced by parenteral administration.

General character of organotherapeutic products and methods of administration.

Desiccated endocrine gland substance is generally used in medicine, and is preferable to extracts of the glands, since solvents may remove active hormones whose chemical composition is unknown, and the protein and elements other than actual hormones are of the highest importance for reasons stated by Hallion and MacLeod under homostimulative organotherapy. The products should be prepared from fresh glands of healthy food animals and standardized.

It may be stated generally that they are not destroyed or lose their identity as a result of the action of the digestive enzymes. Hypodermic administration would probably give more rapid results, but organotherapy has never been a treatment which was very urgent. It is also possible that the subcutaneous administration would cause the formation of antigen, which perhaps might cause the appearance of anaphylactic phenomena. The hormones as chemical compounds probably pass through the alimentary canal unaffected by enzyme action, although it is known that they may undergo chemical changes, such as oxidation; epinephrin is well known to be easily oxidized. Others, however, are more stable and pass through unaffected, as thyroxin, which is a crystalline iodine containing compound, and possesses the physiological properties of thyroid extract, and is used in cases of defective thyroid functioning, such as simple goiter, cretinism, and myxedema.

There can be no doubt of the interrelationship between the endocrine glands. Of the particular relations existing between these glands and their combined action in functional activity, the following correlations seem fairly well established.

Thyroid—Pituitary Relation. The conclusion of a large number of investigators is in practical agreement that the pituitary shows definite and in many cases evident hypertrophy following thyroidectomy. There is increased secretory activity of the anterior lobe; also hypertrophy of the pituitary following thyroid feeding, according to some experimental workers. There is apparently no increased iodine content in the hypertrophied pituitary.

Thyroid—Gonad Relation. The relationship with the ovaries is shown by the hypertrophy originating at puberty, menstruation and pregnancy, and by the faulty and abnormal development following thyroidectomy and by abnormal menstrual conditions during Basedow's disease and the atrophy of the sex glands which sometimes occurs during this disease. It is also observed that hypothyroidism is attended by diminished function of the gonads, frequently resulting in impotence. Atrophy of the testicles usually results from thyroidectomy. The basal rate is raised above the normal in the majority of cases of pregnant women, and in probably the majority of cases it declines after delivery.

Thyroid-Adrenal Relation. It is remarked by a number of workers that thyroid feeding in animals results in hypertrophy of the adrenals. This is a general conviction, and but few exceptions are recorded. Evidence of a relationship between the thyroid and the suprarenal cortex is indicated by the rapid thyroid hyperplasia after severe injury or destruction of the suprarenal cortex. From these facts it is supposed that the cortex exercises a regulatory, inhibitory or restraining influence on the thyroid activity and hence on tissue oxidation. On the other hand it is believed that the thyroid and adrenal medulla mutually stimulate each other, a fact generally held and fairly well established.

Thyroid-Thymus Relation. Any possible relationship between the thyroid and thymus is far from clear.

Thyroid-Pancreas Relation. The thyroid is seemingly opposed in action to the pancreas, at least in carbohydrate metabolism. The feeding of large quantities of thyroid substance depresses the secretory action of the pancreas to an evident degree, although small quantities increase the secretory function.

Pituitary Thyroid Relation. Pituitary feeding and the ingestion of pituitary ex-

tracts, as shown by the experiments of various workers, to be the cause of varying degrees of thyroid hypertrophy. Extirpation is said by some to cause thyroid atrophy, and by others hypertrophy.

Pituitary-Adrenal Relation. This relationship is suggested by the correlative action of each upon unstriped muscle, glandular tissue and bloodpressure.

Pituitary-Gonad Relation. This is clearly established from the striking changes (atrophy) of the gonads following partial ablation of the anterior part of the pituitary.

In acromegalia we have amenorrhea in the female and impotence in the male. Pituitary feeding, according to some, results in stimulation of the sex gland. Menstrual irregularities, amenorrhea, etc., are improved by the administration of pituitary substance.

Pituitary-Pancreas Relation. Sugar tolerance is increased in hypopituitarism, and glycosuria is common in acromegaly. The correlation among the thyroid, pituitary, pancreas, adrenals and liver is evidenced in carbohydrate metabolism. It is probably the pancreas in this group that gives rise to antagonistic action to the others. Rudinger, Falta and Epinger give the action of the thyroid, adrenals and pancreas as follows: "The pancreas inhibits the action of the thyroid and adrenals; the adrenals inhibit the pancreas and stimulates the thyroid; the thyroid inhibits the pancreas and stimulates the adrenals."

Adrenal-Gonad Relation. In this correlation there is hypertrophy of the cortex of the suprarenal gland during pregnancy and the procreating period; hypertrophy of the cortex in precocious sex development; underdevelopment of the cortex in infantilism; tendency for increased activity of the cortex to cause the appearance of male characteristics in the female. Feeding of adrenal substance over a great length of time has been shown to result in hypertrophy of the ovaries and testes.

Adrenal-Pancreas Relation. The adrenals exert antagonistic action to that of the pancreas, especially in the effects on carbohydrate metabolism.

Adrenal-Thymus Relation. The thymus is sometimes hypertrophied in Addison's disease.

Gonads. The gonads are regarded as internal secretory organs, and they include both the interstitial cells of Leydig and the spermatogenic cells, between which there is a functional antagonism. This principle is involved in Steinach's operation.

Gonad-Thymus Relation. The effect between the gonads and thymus seems to be antagonistic. The function of the thymus is

most active before puberty, and apparently restrains the development of the gonads. In castrated animals the thymus is larger and persists longer than in normal animals.

Gonad-Pituitary Relation. During pregnancy there is increased functional activity of the pituitary gland. Castration causes hypertrophy of this gland.

Pineal. Some relationship of the suprarenal cortex and the gonads to the pineal in growth and sex development is indicated.

Thymus. No definite relationship known. Some indefinite relation to the thyroid has been suggested.

Pluriglandular Therapy. Since physiological investigation and experimental pathology has more and more supplemented the observations of clinical medicine the correlation of the endocrine glands has become firmly established. As the field developed and the practical application to therapeutics, organotherapy, began to receive more careful study, it became evident that this fundamental fact of endocrine correlation would have to be taken into accounts in therapy as well. There was increased evidence that a large percentage of the cases of failure to obtain results were due to failure to combine gland substances in prescribing and that in such cases other causes of failure, faulty diagnosis, inert gland products, etc., could be excluded. Bell had similar experience to that of many other workers in this field. He says:

"In seeking to discover the reasons of the uncertainty of the action of the ovarian extract, I found that this preparation is much more active when thyroid extract is administered at the same time."

The underlying principle of pluriglandular therapy is rational and founded upon established facts of a physiological endocrine interrelationship, the recognition of endocrine disease as pluriglandular conditions, and upon the synergistic effects exhibited by the gland substances used in therapy. Pluriglandular therapy followed as a logical and necessary step the recognition of these facts just related. The organotherapy of the ancients, and in fact until very recent times, was one in which single glands alone were used, and the failures resulting we have observed.

"Uniglandular organotherapy had its rise when clinical and experimental observation disclosed the phenomena which result from alteration or extirpation of one or another gland element, failing to take account for the most part of the anatomical and physiological connection between these elements. But when their complete functional unity and intimate biological connection came to be understood: their morbid manifestations ceased to be looked upon as due to separate factors and

treatment became directed with a view to their physiological interrelation, the only method of dealing fully with their functional insufficiencies."

Some direct quotations from contemporary sources will give evidence of the general acceptance of the foregoing views as follows:

"It should be recognized that when one gland is malfunctioning others are also disturbed, and may thus cause atypical conditions." (Oliver T. Osborne.)

2. "That the various structures making up the endocrine system stand in intimate functional relation with each other has become a medical truism." (R. G. Hoskins.)

3. "When one considers the interrelation and interdependence of the internal glandular system, it is hardly conceivable that there should be any absolutely uniglandular disturbance." (Walter Timme.)

4. "The most remarkable fact about the internal secretions is that they are correlated with one another. Not only has it been abundantly demonstrated by experiments but in many cases pathological lesions of the individual glands cause some disturbance in the functional relations of other glands—the so-called pluriglandular syndromes." (Fielding H. Garrison.)

5. "The theory of a correlation between the glands that constitute the endocrine system though only vaguely understood is, nevertheless essentially well established. It may be stated in general that the ductless glands are normally so correlated as to form a perfect physiologic balance which is preserved by a proper distribution of harmony and antagonism between the functions of the various glands. If one of the glands is diseased or injured or extirpated the normal balance is upset and the organism of the individual may be affected by the abnormal action of one or more distant glands of the group." (Graves.)

"Statements relating to pluriglandular therapy."

1. "I believe that the future development will be along the line of pluriglandular therapy due to the probable correlation between the pituitary, thyroid, mammary gland, suprarenal and ovary, rather than in the use of single extracts." (J. C. Hirst.)

2. "It is possible that the reason why physiologically active secretions of various organs, such as the ovary, the suprarenal cortex and the anterior lobe of the pituitary, have not been obtained and utilized therapeutically is because they do not produce their effects single-handed; they must either be activated by or combined with some other substance, as they are normally in the body, before they can give effect to any properties they may

possess." (Blair Bell.)

3. "In the same way as I have built up a pluriglandular theory, I have associated the glandular extracts to the point of almost entirely eliminating from my materia medica mono-glandular therapy." (A. G. Abadal.)

4. "On a priori grounds, however, if endocrine syndromes are, as many maintain, always or even commonly pluriglandular, more rapid amelioration might be expected if a suitable pluriglandular formula were used. Practically rational pluriglandular therapy would seem to demand a large number of different combinations and these in different proportions in each case as indicated by the degree of involvement of each gland and the susceptibility of the patient." (R. G. Hoskins.)

5. "I have already insisted too much on the importance of pluriglandular syndromes and the frequency of a simultaneous alteration of several glands, to say more on this subject. We must oppose an associated organotherapy to multiple functional disturbances. In some cases it is best to give each one for a certain period, in other cases the extracts of various glands should be given simultaneously. I find more and more that I have to use preparations containing a combination of thyroid, pituitary, ovarian and adrenal in varying proportions. When administered, such as Dercum's disease, glandular obesity, scleroderma, certain cases of infantilism, etc., these organotherapeutical preparations seem to act very favorably. It even seems as if thyroid medication was better tolerated when combined with either adrenal or pituitary extracts. When medication has to be carried out for a long period of time the association of these extracts is particularly indicated." (P. Lereboullet.)

6. "The conception of pluriglandular syndromes has a practical interest; the application of mixed organotherapy in their treatment. Renon has insisted on the successful results which may be obtained by a mixed organotherapy which would fail if only one gland was used. As an illustration, we will recall the use of thyro-ovarian medication in ovarian insufficiency." (P. Harvier.)

7. "We have previously referred to associated insufficiencies of several organs, particularly of several endocrine glands. In these cases, it is perfectly legitimate to use several extracts. It is possible to obtain preparation of different extracts in the proportions in which they are best given." (H. Carrion.)

A leading endocrinologist has said: "The first systematic presentation of the arguments for combining gland substances appears to

have been made by Renon and Delille in 1907. In this same year also the term pluriglandular syndrome was suggested by Claude and Gougerot." Making use of the date at that time available relating to the interrelationship of the glands, they reported that in applying these ideas to opotherapy, after many experiments they succeeded by means of a mixed medication, thyro-ovarian, ovaro-hypophyseal, etc., in controlling diseases which had not yielded to one medication alone, thyroid alone, ovary alone, etc.

In recent work by four French authors pluriglandular syndromes are divided into three groups as follows:

"First Group. This is characterized by a primary alteration of one gland and a secondary action on several others. There is always a predominance of one gland in the symptomatology of the disturbance. Under this heading are included: (1) pluriglandular syndromes with thyroid predominance, (2) pluriglandular syndromes with pituitary predominance, (3) pluriglandular syndromes with ovarian predominance.

"Second Group. This group is made up of an association of two uniglandular syndromes, the peculiarities of each being discernible. This includes such conditions as exophthalmic goitre associated with Addison's disease or acromegalia, myxedema following Basedow's disease, myxedema with acromegalia.

"Third Group. This is characterized by the association of the several uniglandular syndromes without predominance of any particular gland."

At this point I shall quote a list of disturbances of the endocrine glands, epitomized by Oliver T. Osborne in his "Principles of Therapeutics," 1921:

1. Thyroid absent indicates a cretin.
2. Pineal disturbance—precocious sexuality.
3. Thymus insufficiency—too early sexuality.
4. Thymus too long active—delayed puberty.
5. Pituitary hypersecretion—a giant.
6. Pituitary posterior hyposecretion and Pituitary anterior hypersecretion—overgrowth; a fat child.
7. Thyroid subsecretion—slow growth; poor mentality; obesity.
8. Suprarenal hypersecretion—early maturity; mentally active; physically active; if a female—masculinity.
9. Suprarenal hyposecretion—general weakness; now aggressive mentality; if a male—femininity.
10. Gonads hypersecretion—sexual perversity.

Gonads hyposecretion—sexual insufficiency; obesity.

11. Thyroid hypersecretion—Graves' disease.

Thyroid hyposecretion—many types of abnormal conditions.

TEETH

1. Thyroid normal—good, white teeth.
2. Pituitary hypersecretion—large incisors, separated.
3. Gonad hyposecretion—small lateral incisors.
4. Suprarenal hypersecretion—sharp, long canines.

HAIR

1. Thyroid normal—fine hair; normal growth.
2. Thyroid hyposecretion—loss of hair.
3. Suprarenal hypersecretion—hairy; eyebrows heavy and medium.
4. Suprarenal hyposecretion—scanty hair; moles and pigmented spots.
5. Pituitary hypersecretion—hairy.

Dosage of organotherapeutic products may be ascertained by reference to books on endocrinology.

Perforation of Gastric Ulcer in Girl Aged 7.—Norrlin merely sutured in two planes the ruptured callous ulcer in the pylorus region, left a drain in each subphrenic cavity, and drew out the appendix through a buttonhole below for appendicostomy. Although twenty-four hours had elapsed since the perforation and the peritonitis was well under way, the child has had no further disturbances during the nearly five years since. Between the age of 2 and puberty, he has found only five cases in the literature, including two fatal perforated cases and three without perforation given successful surgical treatment. (In French.)

The Movable Artificial Hand.—Platou gives an illustrated description of the sixteen cases in which he made one or two canals in the stump out of a bridge of skin, and thus allows volitional control of the artificial hand. Twelve have used their prostheses for from three months to three years, and in only one instance have the canals been tender. The muscular power of the canals has increased in all but two, and ten have expressed their satisfaction with the cinematization. A working claw can be used for severe labor and then be changed for the artificial hand at will, as one changes a garment. (In English.)

ANIMAL DISEASE CONTROL WORK AND ITS RELATION TO PUBLIC HEALTH.*

By J. E. GIBSON, Washington, D. C.
Bureau of Animal Industry United States
Department of Agriculture.

I feel highly complimented at being invited to come here to assist as best I may in finding the place of the veterinarian as it relates to public health.

In appraising the value of the veterinarian to the community in which he lives and practices his profession we are too prone to think of him chiefly in terms of material values, forgetting his service to the human family in preventing the ravages of diseases which lurk in the flesh of food-producing animals. Along with the physicians' fee there goes, always, a sense of gratitude for the restoration to health of a member of the family. The veterinarian's charge will be justified only by the actual saving of the dollar.

The veterinary scientist sees his largest duty in the prevention of animal diseases and I am taking this opportunity to point out to my fellow practitioners that in this field there is opportunity for service and distinction second to none in the entire range of scientific development. Most animals which we are called upon to treat are used by members of the human family as food, and flesh is subject to disease. Therefore, the veterinarian is a conservator of human health and thus becomes a vital part of the economic and social welfare of his community. In a much larger way he is vital to agriculture, the most important business of mankind.

No nation that fails to take agriculture as one of its fundamentals can hope to be permanently successful, and any system of agriculture that failed or refused to recognize live stock as its foundation stone would be as a house built upon the sand. Without a scientifically trained veterinary service, easy of access, the production of live stock along scientific lines cannot succeed. If, then we are to attain the greatest success as a nation the health of our live stock is of prime importance to the health and happiness of the people.

A very eminent authority has pointed out that after the Russian revolutionists had replaced their qualified veterinary personnel with laymen, selected for political reasons from among the soldiers of the Red army, Russia broke down and began to lose millions of its citizens from starvation due in a large measure to outbreaks of glanders among its horses, rinderpest among its cattle and other scourges which devastated the sheep and

swine herds. Russia, in the opinion of men qualified to speak upon the subject, will not recover in a generation, primarily for the reason that it allowed its source of food supply to be destroyed by the ravages of animal diseases.

Because of its large and scientifically trained corps of veterinarians the United States is today the safest country in the world in which to grow live stock but if for any reason we permit our veterinary service to deteriorate we should be open to invasion from animal diseases from foreign countries that would seriously cripple, if they did not destroy, one of our basic industries and place some of our most necessary articles of food beyond the reach of a majority of our people.

The point is graphically illustrated by the comparatively recent invasion of one of the most destructive of animal diseases with which we have had to contend. I refer to the outbreak of foot and mouth disease in California and Texas. Deprived of an efficient force of trained veterinarians that most dreaded of all diseases affecting our food-producing animals would have spread rapidly to the great open ranges of the west and the destruction of cattle, sheep and swine would have been appalling.

The public generally has but slight conception of the achievements of the members of the veterinary profession in suppressing and completely eradicating that disease from the country. Called upon as they were to combat all but insurmountable barriers, they went steadily forward battling against desperate odds, undaunted by the stifling heat, and oppressive conditions attendant upon the worst drought known in thirty years, until, so far as is known, there is not a case of the disease in the United States today.

As going to show the conditions, under which these men labored it is related that much of the territory in to which the disease had found its way is mountainous and the terrain broken by many canyons. To dig trenches in the rocky soil of sufficient length and depth to contain the thousands of animals it was found necessary to destroy was all but impossible. To overcome this handicap, the cattle were driven into blind canyons, shot down and the sides of the canyons were dynamited, thus covering the carcasses to a sufficient depth to prevent being resurrected by wild beasts. As usual there has been some criticism by the uninformed of the methods employed in eradication and while the cost has been enormous it has been shown to have been much less than the annual loss sustained by the people of some foreign countries where the disease persists from year to year. While

*Read before the Fourteenth Annual Conference of City and County Health Officers, Louisville.

foot and mouth disease is said not to be communicable to man the most drastic measures for its control are necessary for the conservation of our food supply.

Anthrax is one of the more important diseases with which the veterinarian comes into contact, being among the oldest and most widely disseminated diseases of animals, readily transmissible to man. Its spores being very resistant to the normal destructive agencies of nature renders it particularly troublesome when once introduced into a locality. These spores are frequently carried in the wool, hair, hides, and hoofs of animals sick or dead of anthrax and by this means introduced into widely scattered localities where it may lie dormant for many years to appear suddenly in epizootic form.

The symptoms vary in different species. However, the most characteristic features are the suddenness of the attack, high elevation of temperature with local manifestations such as carbuncles and edema of the skin, frequently accompanied with brain complications. Several writers have reported the finding of the causative agent of anthrax in the milk of cows suffering from the disease. Health officials should make it their particular business to see that animals dead from anthrax are completely destroyed by burning or deeply buried and covered with quick-lime.

Glanders, a disease peculiar to horses and mules, and when transmitted to man, as it frequently is, is one of the most fatal diseases of the human family.

Positive diagnosis of the disease in the animal may be made by scientific application of mallein. The symptoms of glanders in man are of much importance to the health officer. Usually the parts first affected are the hands, nasal mucous membrane, lips, and conjunctiva. In from three to five days the affected parts become swollen and very painful. Fever is often the first symptom, followed by a nasal discharge, swollen glands, ulcers on the nasal mucous membrane, pustules and abscesses on the skin, articular swellings and a general systemic disturbance. Treatment is usually of no avail, death resulting in from two to four weeks and not infrequently within a few days. In some cases, however, the disease assumes a chronic form and exists for months and even years.

In the fourth century B. C., Aristotle wrote: "Dogs suffer from madness that puts them in a state of fury, and all animals that they bite, when in this condition, become also attacked by rabies," and from that time until this rabies, sometimes called hydrophobia, has been with us more or less constantly, causing great losses among farm animals and much suffering in the human family.

The primary cause of rabies is known to exist in the brain, spinal cord and saliva of the affected animal and its presence in the salivary glands, the pancreas and in the milk of rabid animals has been reported. Negri describing small bodies in the brain cells and positive diagnosis is made by the finding of these bodies.

The period of incubation is variable, depending on the site of the wound, the amount of virus introduced and its virulence. One prominent writer gives the average period in man as 40 days, in the dog, 21 to 40 days, in horses, 28 to 56 days in cats 14 to 28 days, and in pigs 14 to 21 days. As the virus penetrates the nervous system by following the nerve trunks from the site of the infection to the spinal cord, then through the spinal cord to the brain the period of incubation will depend very largely upon the site of the wound. Thus if the bite of the rabid animal be about the face the symptoms of the disease will appear in a shorter space of time than if the victim be bitten on the lower limb or any part of the body further removed from the brain. While the nerves form the main route by which the virus travels the circulation may assist in its dissemination, especially in small animals. Rabies is generally divided into two forms, the furious and the dumb. In the first the animal is irritable, aggressive and ready to bite every object which comes in its way. In the dumb form, the muscles of the jaws are paralyzed which renders the animal incapable of biting. However, the saliva from a case of dumb rabies is quite as virulent and dangerous as that from an animal suffering from the furious form.

Ordinarily the word chicken creates no particular impression upon the public mind and the poultry business is looked upon as unimportant. But when the recent outbreak of European fowl pest occurred in my native state and when the authoritative statement was made that the poultry business of Indiana alone amounts to sixty million dollars the fact that this enormous industry had been attacked by a devastating disease, that the breakfast table of practically every family was threatened created consternation among the people and in record time the legislature appropriated fifty thousand dollars to be used in stamping it out. A corps of trained veterinarians was thrown into the field and within two weeks the disease had been completely eradicated and another important source of food supply had been saved.

As so little is known by the general public about European fowl pest a short description may not be out of place here. The causative factor is a filterable virus introduced into this country for investigational purposes.

Chickens, turkeys, geese, ducks, and guineas are particularly susceptible. Birds affected with this disease show progressive depression and loss of appetite. The wings droop, generally the head drops but may be drawn backward. The nostrils and beak show an accumulation of clear or cloudy yellowish mucous. The comb, wattles and eye lids appear swollen and present a red or purplish discoloration. On post mortem we find an accumulation of sero-gelatinous material in the subcutaneous tissues of the wattles and throat. Mucus is found in the pharynx and nasal cavities, petechia on the mucous membrane of the trachea and oesophagus and in some cases inflammation of the lungs. An important point in making a differential diagnosis between fowl pest and cholera is the fact that in the former no characteristic changes occur in the liver. Medicinal treatment is unavailing. The only successful method of combating the disease is through slaughter and destruction by burning of all infected and exposed fowls to be followed by a thorough cleaning and disinfection of infected premises.

In this connection it may not be amiss to say that there is at this time considerable public sentiment in favor of inspection at all establishments where poultry is slaughtered for public consumption, such inspection to follow very closely that maintained over other meat and food products. In view of the fact that poultry is known to be susceptible to various diseases such as roup fowl cholera, tuberculosis, and other diseases and conditions that tend to render the flesh unfit for food the suggestion for inspection does not seem at all unreasonable. It is well known that in some localities entire flocks of chickens are being wiped out by the ravages of tuberculosis and the Bureau of Animal Industry of the United States Department of Agriculture is now making a survey of the entire country in an effort to locate the centers of infection and ascertain, if possible, what influence avian tuberculosis is having on the swine industry, or in other words how much of the tuberculosis found in hogs is due to the avian type of the disease.

The record made by the veterinarian in the Meat Inspection service of the United States government will stand for all time as one of efficient service to the public. Since 1906 in particular, the veterinarians have stood in solid phalanx between the people and diseased meat. Not only have they stood guard over the breakfast table of the public, but have advanced steadily in scientific achievement until our meat inspection service has come to be recognized as the most comprehensive in the world.

The average individual knowing merely

that we have a meat inspection service, takes little note of the fact that it is the trained veterinarian who stands, day by day unrelentingly between him and such diseases as anthrax, tuberculosis, Texas fever, actinomycosis and various other diseases and conditions that tend to render his meat supply unhealthful and otherwise unfit for human consumption. Nor does he realize the rigid sanitary requirements under which the various steps from slaughter to table are taken. To those who would charge, as is sometimes done, that meat inspection as conducted by the Federal Government is a farce and a fraud, that a wink or a nod is all that is required to obtain the passage of a diseased or contaminated product into the channels of trade I say—and many years of service in the Meat Inspection division entitles me to speak intelligently on this phase of the subject—when a carcass of an animal or a piece of meat has once been declared by a Federal inspector to be diseased or unfit for human consumption for any reason there is absolutely no chance of its escaping the condemned tank where it is rendered into inedible grease or fertilizer.

As an indication of the measure of protection which the public receives through this service your attention is invited to the fact that of the more than 73,400,000 food producing animals slaughtered during the fiscal year 1923, 294,851 whole carcasses and countless organs and parts of carcasses were found to be affected with some disease or condition that rendered them unfit for food and were condemned and destroyed. More than 40 diseases or conditions were recorded as causes for condemnations.

It may be doubted whether any single word in our language means more to the health of the people of the nation than the word "sanitation." When one considers the advanced steps taken during the past twenty years for the preservation of public health in our cities and then stops to contemplate what the death rate in our vast centers of population might have been without these modern methods of sanitation the thought cannot be other than startling.

Relatively the same conditions that have been obtained in thickly populated districts can be secured in smaller cities and towns and in the rural districts if scientific sanitary precautions are practiced.

The Health Department of one of our great states has adopted as their slogan this: "Within natural limits public health is purchasable," but public health cannot be purchased through the employment of sanitary officials whose only claim to the title, "Sanitarian," is their cheapness. The sanitary of-

ficial should not only know what sanitary measures are needed but should know also why they are necessary. If there is one thing needed today above all others for the protection of public health it is scientific inspection of our dairies, creameries, condensories, and other places where milk and its products are handled. Incompetent advice has been shown to be costly, and both the dairyman and the public have suffered when the work of dairy inspection has been placed in the hands of those untrained in live stock and sanitary science.

The sanitarian, particularly the one in control of milk inspection and sanitary conditions in our dairies, should know, first of all, whether cows furnishing milk for human consumption are in a perfect state of health. He should know that in addition to the various specific diseases to which animals are subject, such for example as tuberculosis, actinomycosis, anthrax. Texas fever, mammitis, etc., there are certain nutritional diseases that must be overcome if a dairy animal is to produce a quality product. He knows that certain elements which formerly existed in the soil have been eliminated by Nature's processes and the failure of man to render unto mother earth the things that are her due. He knows, or should know, that these elements lacking in the soil may be made up in the animal by scientific feeding. Failure to supply the dairy animal by proper feeding, with the nutrition denied by nature renders her incapable of supplying a product up to standard in either quantity or quality.

The hygienic qualities of milk depend very largely upon the conditions existing at the source of supply. Collecting samples of milk in the city or town and subjecting them to laboratory examination will disclose certain conditions, some of which may be dangerous to human health, but in a vast majority of instances the milk from which the samples were taken will have been consumed before the danger has been discovered. It would appear more rational to guard against contamination at the source of supply than to attempt to discover contamination after the product has reached the city. Rigid inspection of all dairies together with laboratory examination of their products will provide a double check on one of our important food supplies but if called upon to choose between laboratory examination and dairy inspection I should not hesitate to choose the latter with the added stipulation that the inspection be made by one qualified for the work.

Mothers' tears and open graves are formidable pleaders and to continue to feed babies on the stuff produced in some of the so-called dairies I have seen will be to take a cowardly

advantage of childhood's helplessness and commit an unpardonable sin against the mothers who bear them.

If the veterinary profession had no other reason for its existence the work done by its members in the campaign for the eradication of bovine tuberculosis would justify its being and its continued activities.

As is well known the veterinarians view the problem of tuberculosis eradication from an economic standpoint. With him it is a question of dollars and cents, of saving the nation's meat and milk supply from what is generally conceded to be its most insidious foe. When the campaign began in 1917 some of the greatest herds of cattle in America were threatened with utter annihilation, and it was to save these and rebuild them on a firmer foundation that the veterinarian has gone steadily forward day after day, often in the face of the most bitter opposition, determined that no quarter shall be shown until this enemy of one of our basic industries shall have been completely eradicated. In answer to those timid souls, those doubting Thomases who are want to ask whether bovine tuberculosis can be eradicated I can do no better than to quote the Chief of the Tuberculosis Eradication Division of the Bureau of Animal Industry who says:

"Bovine tuberculosis can be eradicated and it will be eradicated whenever and wherever the people make up their minds to have it done." Those who inquire whether bovine tuberculosis is communicable from animal to man are respectfully referred to the members of the medical profession who should be better able to answer the question than I am. However, I reserve the right to have my own opinion on the question and my conclusions have been arrived at after years of study of statistics presented by the most able scientists of both Europe and America.

Somebody has said that "So long as there is any probability of the existence of Hell it would be deemed advisable to live a righteous life." And so I think that so long as there is even a possibility of tuberculosis being transmitted from animal to man it is our duty as veterinarians and your duty as health officials to follow the paths of sanitary righteousness. So long as Park and Krumweide say that in children under five years of age 61 per cent of cervical tuberculosis adenitis, 58 per cent of abdominal tuberculosis, and 66 per cent of the generalized tuberculosis and meningitis of alimentary origin are caused by the bovine bacillus I shall feel inclined to believe that it is the duty of health officials to use all possible means to remove the tuberculous cow from the territory in which his

duties lie.

We are fully aware of the fact that in almost every community there are those who would oppose the movement now going on to free our herds of tuberculosis. If there are any such present here permit me to say to you that every blow struck against this movement is a blundering, back-handed welt at one of the fundamentals of our national wealth and a cruel stab at child life in America. If you ask me whether this movement to rid our herds of this menace will succeed, I answer, yes. Public opinion, that subtle something that rules the camp, the cabin and the court, is undeniably behind the movement and public opinion cannot, must not, and will not be denied.

HEALTH WORK.*

By J. B. FLOYD, Richmond.

Every community really and vitally interested in public health has an organized Health Department on a whole time basis. Part-time health officials must necessarily devote most of their time to their own pursuits and professions. A whole-time personnel, on the other hand, can utilize their entire time without fear or favors.

Having co-operated with a full-time health Department for seven years in Mason County, I shall briefly outline some of the work being done in that county.

Mason County has the distinction of being the first county in Kentucky to establish a whole-time Health Department under an act of the legislature of 1918. Prior to this time, dating from 1913 public health activities were financed by the Mason County Health League, an organization which still continues to function; and with interest unabated given service and financial support to the needy and sick with special attention to the cure and prevention of tuberculosis. But, with all due respect for the great work done by the Health League it is not in position to carry on the great work that exists to be done, if ideal health conditions are to be attained.

To the public health nurse is given the privilege to carry into every home the banner of good health and happiness. This is accomplished through the number of visits made, which count into the thousands each year; through supervision of the Child Health conferences and through care of the needy sick.

The progress made in rural sanitation during the past year has been considerable, as there are no cases of hookworm, malaria, and very few cases of trachoma in the country.

Thirty-eight sanitary closets and three septic tanks have been constructed during the year of 1924. The total of these type of closets now in use in the county number about 450. Counting the better class homes with bush systems installed it is evident that the general sanitation existing in the county is very good.

As further evidence of the excellent conditions prevailing in the county no cases of typhoid have occurred during the past year. The insanitary method of living in the suburbs of the city of Maysville was responsible for the few cases of typhoid that occurred in the city.

A large number of water samples taken during the past illustrates another phase of activity in health work. One hundred and thirty-eight samples were taken during the year and of these 84 were reported as safe and 54 as unsafe. Nearly all of the cisterns and wells shown not fit for drinking purposes were either sterilized by chlorinated lime or cleaned. The increased interest of the public in pure water is a good omen for the future. It means health insurance to safeguard the water supply. What we eat and what we drink constitutes half our liability to contract communicable diseases and personal contact with the sick the other half.

Steps toward the prevention of contagious diseases have probably received more attention than any other phase of the health work. Since consolidation of the county schools, of which Mason County has twenty, twelve being consolidated, it has become a matter of increased importance to isolate and quarantine all known cases of contagious diseases. By every means in its power the Health Department, together with the co-operation of the local physicians and teachers aid in preventing any contagious disease in the schools.

All children in the schools of the county are examined at least twice a year. The object of such an examination is three fold. First children with contagious diseases are found and temporarily excluded from school and also many remedial defects are found and corrections advised, but greatest of all, the interest centered upon the well being of the child has been productive of the most good. Parents are following more and more the suggestions of the health department and are having medical and dental attention given their children when necessary. A report of the physical examination of the school children is as follows:—

Defective pupils in 1921	53%
Defective pupils in 1924	29%

A free service for all physicians in the county is offered for bacteriological examination.

*Read before the Madison County Medical Society.

The following is a report of work done during the past year:

Septic tanks constructed	3
Number of Ky. sanitary closets constructed	38
Number sanitary closets repaired.....	76
Number sewer connections reported	91
Number examined for tuberculousis	112
Number examined for diphtheria	27
Number examined for gonococcus	8
Number Wassermans	11
Other microscopic examinations	51
Water analysis made	138
Number school visits	499
Number of school children examined	2385
Number inspections of school children ..	6096
Number defective children found	717
Number defects found	1309
Number defects found corrected	372
Number communicable diseases reported	484
Number quarantines established	44
Number treatments for gonorrhea	76
Number treatments for syphilis	88
Food and dairy establishments inspection of	1618
Infants and pre-school age children examined	1392
City visits to homes	6607
Health lectures or talks given	200
Bulletins distributed	1959
Nuisances abated	188
Number health displays or exhibits	5
Child Health Conferences	23
Number children attendance	179
Source of funds supporting the Health Department in Mason County:	
The Rockefeller Foundation	\$ 2000
U. S. Public Health Service	2000
State of Kentucky	2000
Mason County	3000
City of Maysville	1000

Total\$10000

Courts in legal action have set \$5000 as the value of a human life. Therefore, if all the varied activities of the Health Department result in saving only two lives each year it pays for itself.

The Veins and Water Metabolism.—Mautner investigated the pathologic significance of the functional occlusion of the hepatic veins discovered by Pick and himself. This function is most apparent in the liver veins in dogs, but it is evident also in other veins, especially the pulmonary. The hepatic veins are closed by the parasympathetic and are opened by the sympathetic. Histamin, peptone, anaphylactic shock in dogs and hypotonic salt solution close the veins; epinephrin, caffeine, theobromin and hypertonic solutions open them.

RHEUMATIC FEVER IN CHILDREN.*

J. L. ATKINSON, Campbellsville.

While casting my line of thought into the broad sea of medical subjects, for something to bring before you that might provoke a discussion of value to all of us, a patient waiting brought a tug on said line, and when drawn in proved to be the above title for my paper.

This subject is of interest to us because children we have with us always, some of them will be sick, and some of the sick children will present some form of the rheumatic group. Besides, I have in some instances been culpably slow, or negligent, in recognizing this condition, and it has occurred to me that I may not have been alone in such oversight or neglect.

The frequency of rheumatic affections, or infections, in children is such that we should keep in mind the possibility, in any case with vague or indefinite symptoms, of the child having some form of the disease.

I shall not attempt any discussion of the etiology of rheumatic fever, except to say that the old ideas that defective digestion, assimilation, or metabolism, cause an accumulation of lactic acid or combinations of the same, or uric acid in the tissues, has been discarded by the best medical thought, and the opinion of today is that the disease is a non-contagious, infectious process. While this view is held with practical unanimity, it is not known whether the disease depends on a bacteriologic entity (*diplococcus rheumatic*) or is a symptom complex caused by a number of infective agents. Neither is it definitely settled as to whether the local manifestations indicate an actual septicaemia, or toxins are responsible. One point seems definite in our conclusions, which is there is more or less of a general toxemia.

Another well-known fact is that whatever the poison, it has a selective tendency for fibrous and serous tissues.

The disease may occur in infancy and early childhood, becomes more frequent from five to ten years of age, and most frequent between ten and twenty.

The symptomatology of rheumatic infections in children is quite varied, and frequently vague, which fact should arouse additional interest in the diagnostician. If we depend on marked joint or tendon involvement, or other evident local manifestations of the disease in children, we will rarely make a diagnosis. These symptoms are much less evident in children than in adults, and frequently require close examination. Also in children it is more likely to be non-articular than

*Read before the Taylor County Medical Society.

in adults in whom it is more frequently poly-articular.

Rheumatic fever, acute rheumatism is quite common in childhood, muscular rheumatism less so, and so-called chronic rheumatism very infrequent. Whenever we have a little patient with elevation of temperature lasting more than three or four days, and we can eliminate pneumonia, bronchitis, typhoid fever, or some other definite acute disease, we should begin to suspect rheumatic infection. We should then look for some joint tenderness or pain, and other local manifestations. The relationship between tonsillitis and rheumatic fever has long been recognized so the throat should be investigated. Often we will not get a definite history of tonsillitis, but find an inflamed throat. Every child that has been subject to attacks of tonsillitis or has continued fever without definite known cause, or that complains of leg ache, should be considered a suspect. Also all children, who have "growing pains," enlarged cervical glands, tendency to torticollis, chorea, frequent urticarial or erythematous rashes, should be considered potential rheumatic subjects.

To the attending physician, and particularly for the future welfare of the child, the importance of early diagnosis of rheumatic fever becomes paramount, because of the special tendency to heart complications in children affected. The heart complication is most often endocarditis, less often pericarditis, and nearly always more or less myocarditis, when the organ is attacked in any part. Rheumatic infection in adults manifests more marked local symptoms than in children, and there is much less tendency to the development of heart complications. Very rarely does a child develop heart disease under six years of age, and Horine says the incidence of heart disease is about twice as frequent at fourteen years of age as at seven. A primary attack of rheumatic fever is not frequently followed by heart disease, but recurring attacks, and recurrence is common, the tendency to heart complications becomes more marked. Rheumatic fever followed or preceded by chorea is very likely also to show heart involvement.

The atypical character of the rheumatic symptoms in childhood, and the tendency to cause permanent disability in the child, should ever be kept in mind in making our diagnoses when we assume the care of a sick child, so that we may do our best to combat the present disease and the probable sequela.

The change in medical opinion as to the cause of rheumatism or rheumatic fever has been much more radical than the change in treatment. The drug principally relied on is some form of the salicylates, now as before the development of the infectious nature of

the disease. There seems to be no doubt of the value of the salicylates in controlling the rheumatic manifestations, and giving comfort to the patient, though it is not believed they limit the incidence of heart complications to any marked extent. I shall say very little more about treatment except that hygienic measures count for much in the prevention of serious sequela, especially keeping the sick room at an even and appropriate temperature, and the little patient quiet, preferably in bed. The normal alkalinity of the blood is reduced in rheumatic conditions, so that deficiency should be corrected as well as possible by the administration of some available alkali—the best of which is probably some form of sodium. Sodium salicylate is probably the most popular, and most frequently used, and the most convenient form of the salicylates. My favorite form of prescription is solution of sodium salicylate in water one part, elixir lactated pepsin two parts, to which is added a small amount of compound tinct. gentian to replace the disagreeable sweetish taste of the solution, with the agreeable bitter of the gentian. While quinine is specific only in malarial conditions, I believe it exerts some influence—probably inhibitory—in most all infections, so I believe it is frequently beneficial in rheumatic conditions.

In preparing this brief resume, I have drawn from memory of my own observations at the bedside, keeping in mind my own neglect and failures, as well as the successes I may have achieved by alert and intelligent attention.

I am indebted to McKee and Wells of Temple University, and Jefferson Medical College for some suggested observations in their *Practical Pediatrics*. I was also drawn toward this subject by reading a brochure on "Heart Disease In Children," by Dr. Emmett Field Horine, of Louisville.

Insufficiency of the Thyroid-Sexual System.—

Borchardt outlines the clinical picture of disturbances from deficient functioning of the thyroid at the critical periods of puberty, parturition and the menopause. The manifestations may take the form of myxedema, scleroderma or mild hypothyroidism from general weakening of the thyroid function. He describes a case in which sporadic myxedema developed after a childbirth. Endogenous obesity is the most frequent manifestation of thyrosexual insufficiency at the menopause. After the stress of a childbirth, it may manifest itself as oligomenorrhea, amenorrhea, falling of the hair, rheumatic pains or headaches. His practical conclusion is that in all forms of thyroid-sexual insufficiency, thyroid treatment is required, even when there is a tendency to grow thin rather than fat.

SOME FREQUENT CAUSES OF GASTRO-INTESTINAL DISORDERS.*

By G. W. PAYNE, Bardwell.

There is a close relationship between oral sepsis, alimentary toxemia and intestinal stasis. Lane says that pyorrhea alveolaris is caused by intestinal stasis. Chronic constipation produces alimentary toxemia. The absorption of toxins poisons the whole system, inducing functional disturbances and organic diseases of a more or less serious nature.

The oral cavity, producing a fruitful soil, soon becomes infected. On the other hand pus which forms around the teeth and gums is carried into the intestinal canal inducing or aggravating a general septic condition. This is known as intestinal toxemia. The absorption of toxins from the alimentary tract devitalizes the system and lowers its powers of resistance.

FOCAL INFECTION.

Hygiene of the mouth is one of the most important considerations in the treatment of diseases of the digestive organs. Experimenters have been able to induce in the lower animals gastric and duodenal ulcer, cholecystitis, pancreatitis, appendicitis, neuritis, oophoritis, rheumatism, arthritis deformans, goiter, enlarged lymph glands, local and general diseases, by intravenous injections of specific micro-organisms taken from the mouth. Oral sepsis offers a focus of infection, acting as a predominating factor in the causation of gastro-intestinal diseases.

Diseases of the mouth may cause secondary infection through the blood stream, or the bacteria may be squeezed out of the diseased tissue during mastication and carried to the stomach and intestines. These bacteria have the power to modify their surroundings so they are able to perpetuate themselves indefinitely.

The parts of the body that are particularly prone to become the seat of focal infection causing systemic disease are the teeth, gums, tonsils, sinuses, gall bladder, appendix and genito-urinary tract. A pyorrheal or tonsillar abscess may be the focus of a gastro or duodenal ulcer, or a diseased gall bladder or appendix.

Long ago it was recognized that focal infection is not confined to their place of origin or location, but is to be found in the wide spread metastasis which may be located at great distances, and apparently have no connection whatever with the original focus.

Instead of being the end, the focus is too often only the beginning of the infectious process, which spreads to those tissues of the body which have an affinity for the invading micro

organism or related strains.

Susceptibility to infection is determined not only by the condition of the individual exposed, but also by his habits, diet, occupation, age, environments, sex and by trauma. If the infection is secondary, the latter may be unrecognized in the original focus, but will assert itself in the selection of metastatic foci in the distant parts of the body which have an affinity for the species of micro-organisms involved.

The specificity of the strepto-pneumo-coccus group was beyond our understanding prior to the achievements of Rosenow, who proved the transmutability of these organisms.

Intestinal toxemia is a form of blood poisoning produced by the absorption of toxins or micro-organism from a deranged intestinal mucous membrane. Any delay in the passage of the intestinal contents through the various segments exposes the patient to intestinal toxemia. Some digestive disturbances are the main fault. Digestion in the main, is due to enzymes, but a small part of it is due to bacteria, which would not be digested at all, were it not for the micro-organisms in the small intestines.

ETIOLOGY.

There are many factors that contribute to the development of intestinal toxemia. Even when the digestive juices are normal, frequent large meals may be decomposed. This danger may be increased if there is secretory or motor disturbances of stomach, or intestines, as in achylia (absence of gastric secretion) gastric dilatation, pyloric stenosis, gastroenteroptosis with kinks, constipation, catarrh of small and large intestines, dilatation of the colon, intestinal stenosis, appendicitis, and parasites. In these conditions food in normal quantity and quality may do harm. The normal defense may be weakened through infectious diseases, infections of the intestinal mucosa, hepatic insufficiency, anemia, or alcohol.

There are three types of intestinal putrefaction according to Herters classification. First, the indolic type, marked by striking indicanuria and probably due to members of the bacillus coli group.

Second, the saccharobutyric type, which seems to be initiated chiefly by the anaerobic forms.

Third, the combined type, or case combining the characteristics of group one and two. In the indolic type the members of the B. coli group form indol in considerable quantities probably in the small intestine.

2. In the saccharobutyric type, the seat of the putriferous process is the large intestine and lower ileum, and is due to the anaerobic butyric acid producing bacteria.

3. The combined type give many examples

*Read before the Carlisle County Medical Society.

of intestinal putrefaction; nervousness, irritability, mental depression, fatigue and anemia.

SYMPTOMS.

The patient looks sick, pale yellowish complexion and irritable disposition, face wrinkled with brownish spots. The lips are swollen and red, the skin is dry and scaly, the nails are soft and fissured, the lumbar glands are painful and enlarged.

The digestive symptoms are such as anorexia, dislike of meat and great thirst. The tongue has a brownish coat and the abdomen is distended.

The condition of the digestive organs varies depending on the pressure of ptosis, catarrhs, fermentation, putrefaction, constipation, enteritis and parasites.

The so-called gastro-intestinal crises may occur in which the accumulated enterotoxins are suddenly excreted characterized by the following symptoms:

Salivation, periodic vomiting and periodic diarrhoea. There may be cholangitis, jaundice and cardiac disturbances as, angina, tachycardia, bradycardia, arrhythmia, cardialgia, neurosis and lowering of blood pressure. The lungs may be involved as asthma and bronchitis.

TREATMENT OF DISEASES OF THE MOUTH.

Prophylaxis is of the greatest importance in the diseases of the mouth as in all others. Beginning with infancy after the teeth appear and coming on down to the toothless man, the care of the mouth is the same. Teach the children at home and in the schools the benefits derived from a clean and well-kept mouth. The tooth brush should be applied both transversely and vertically to remove all food particles. Mechanical cleansing of the teeth is more important for the purpose of removing bacteria from the mouth than the application of powerful antiseptics. All carious teeth should be filled or drawn as they are hot beds for the growth of microorganisms.

Use some good tooth powder, paste or soap for cleansing purposes. In diseased conditions of the mouth and gums, use mouth washes, any of the following may be used:

Borac acid, 3 per cent solution.

Menthol 10 per cent solution.

Thymol 1 per cent solution.

If there is pronounced fetor, permanganate of potassium is good, or hydrogen peroxide 1 per cent. Use these washes often.

In circumscribed areas paint the diseased parts with equal parts of Tr. iodine, Tr. galae, Tr. myrrhae. In pharyngitis alveolaris or Rigg's disease, the first thing to do is to have a dentist to remove the tartar from the neck of the teeth. Incise all pockets with a knife or canter. Then rub the pockets with Iodoform mass. (Iodoform 10 per cent. 10

parts of 1-1000 corrosive sublimate solution, 2 per cent phenol, of 3 per cent boracic acid, and the mixture allowed to stand 24 hours in a tall graduate, after which it is decanted and ready for use.)

TREATMENT OF INTESTINAL TOXEMIA.

In order to change the culture media of the intestines, it is necessary to restrict or exclude certain foods that favor the development of the putrefactive bacteria, and prescribe those which counteract putrefaction. The foods that favor putrefaction contain protein such as, meat, fish, eggs, peas, and beans.

The antiseptic diet in intestinal toxemia should consist of farinaceous (flour or meal) and milk dishes, since milk in all forms as well as carbohydrates inhibits putrefaction. Milk is an antiseptic food owing to its high percentage of milk sugar, which liberates lactic acid and succinic acid through the action in the small intestines of the bacillus coli communis and the bacillus lactis aerogenes. These acids are capable of preventing the anaerobic bacteria in the large intestines from decomposing the casein of milk and the protein of nitrogenous food. If the milk is not well-borne, which occasionally you will find a patient that is unable to take straight milk add a little pure salicylic acid to each amount taken.

Whey is good to use in intestinal toxemia, also in the preparation of soup.

Buttermilk is well suited to the treatment of intestinal toxine owing to its high percentage of milk-sugar and lactic acid and low in protein and fat.

Next to milk the carbohydrates are recognized as the best antiseptic food stuffs. Various kinds of flour and baked foods made from them, because of the slowness of absorption, they reach the lower parts of the intestines, where they liberate lactic and succinic acids.

In the intestinal toxemia protein foodstuffs should be restricted or excluded. Eggs is the best article among this group. No meat fat, little fresh butter. Avoid bouillon, fatty soups, roast meat gravy, meat jelly, meat extracts, raw meat and fish, as they are good culture media for protein bacteria.

Intestinal putrefaction can be attacked by the lactic acid forming bacteria or the Bulgarian bacillus. Yeast has a transitory effect.

ANTISEPTIC MEDICATION.

There is no antiseptic strong enough in doses which would be safe to destroy the bacteria in a quantity of fluid equal to the contents of the intestines. On the other hand it is possible to bring an antiseptic influence to bear that will restrain the development of bacteria.

I shall only mention the various drugs be-

gining with the most important and continuing down the line.

Betanaphthol is the most reliable drug as it passes through the stomach undecomposed and forms free naphthol in the intestine without irritation; it may be given in 5 to 10 gr. doses four times a day. Hydroehloric acid in large doses 1-2 dram of the dilute acid in glass of water after meals. Menthol 30 grs. a day. Bismuth salicylate 10 grs. three times a day. Salicylic acid, resinol and calomel are good. Sublimated sulphur is also an intestinal antiseptic as it is insoluble in the stomach and the greater part passes along the whole alimentary canal. Castor oil and the salines are also efficacious.

PROCTITIS.*

By WM. L. MOSBY, Bardwell.

We older students and practitioners of medicine may be well repaid for a brief review of the anatomy of the rectum for this symposium on their pathology.

According to Gray: "The rectum is the terminal part of the large intestine and extends from the termination of the sigmoid flexure to the level of the semilunar valves of Morgagni," which are really anal valves and mark the beginning of the anus.

The sigmoid is the most movable portion of the large bowel, and the rectum the least movable, and its anatomic arrangement is such as to retard and retain the gastro-intestinal contents, emptied into it so as to conserve the physiologic function of the organ.

The rectum is divided into a superior and an inferior portion; the superior portion extends from above to the apex of the prostate gland and extends along the sacro-coccygeal border and curves with its concavity forward and upward along in front of these bones.

The inferior portion extends from this lower point of the superior along the gland to a point about one inch in front of the tip of coccyx, and is called the prostatic portion, so you will observe the superior portion has its convexity backwards and the inferior portion has its convexity forward.

The ampula is the widest part of the rectum and lies just above the inner margin of the anus.

If my paper proves to be as interesting as the organ under consideration is anatomically short, then you will be fortunate and I will be happy, being only for 4 inches to 6 inches in men and slightly shorter in women for other well-known reasons.

The rectum when empty lies with the anterior and posterior walls in contact but when distended is irregularly cylindrical.

The upper portion has a peritoneal covering anteriorly and laterally, but none posteriorly. The rectum is supported by the mesenteric arteries and fibrous sheaths which surround them and form peritoneal folds which pass in front to the bladder and uterus and laterally to the pelvis.

The middle portion gets some support from the sacral arteries and their fibrous sheaths. The lower portion is supported by the levator ani, Ext. sphincter, and recto-coccygeal muscles. The valves of the rectum are those of Huston which are three to five in number and are composed of mucous membrane, submucous substance and muscular fibers each encircling about (surrounding) one-third of the gut being arranged transversely. The valves of Morgagni, five to ten in number, are about one-half inch in length and are made up of longitudinal folds of mucus and muscular fibers, at the end forming the semilunar valve, crypts of Morgagni, or anal valves. The blood supply is mostly from the superior, middle and inferior hemorrhoidal arteries which give off many communicating and anastomosing branches the veins take the same names and are without valves, a causative factor in many pathologic conditions of this and the terminal organ of canal. The nerves are from the mesenteric, sacral, and hypogastric plexus of the sympathetic and from the third, fourth, and fifth sacral nerves and the lower portion of the rectum is much more sensitive than the upper.

In life the strong often impose upon the weak and so, it is here the long and large bowel above pour their infectious contents into this short organ, with whatever bacteria and irritants and foreign material it may contain which is a contributing cause of inflammation of this essential organ.

In colitis and entero-colitis we are apt to have associated a proctitis from bacterial infection or inflammation may extend downward by continuity of anatomic structure. The etiology of a proctitis from a pathologic consideration would be that of:

1. Catarrhal or sporadic dysentery.
2. Tropical or epidemic dysentery.
3. Amebic dysentery.
4. Diphtheritic dysentery.

These are really complicating or associated pathologic conditions and the prognosis would necessarily depend on the etiologic factor present or the gravity of the underlying complicating, or associated conditions present in the individual case.

Primary lesions in the anal canal and adjoining structures may involve the rectum in an inflammatory process and its treatment and gravity would be necessarily governed by and determined by the morbid condition

*Read before the Carlisle County Medical Society.

responsible for the same.

The obvious indication for the treatment of proctitis is where possible to remove the cause, and to do this, causative and associated conditions should receive our first attention.

Growths, foreign bodies, parasitic infestation, bacterial infection, constipation, and any etiologic factor responsible for the inflammation should be given appropriate treatment.

Dietetic faults should be corrected in so far as possible and regular evacuations by the bowels secured by non-irritating remedies, like mineral oil, in suitable doses to suit the case. Purgation should be avoided as a general rule but where indicated castor oil, aromatic syrup Rhei, or Milk of Magnesia, single or combined are useful.

Pain and diarrhea may require the use of opium in some form where either are excessive.

Direct medication by the rectum will give the best results and may include most of the antiseptics and astringents so indicated.

Where mercurial infection is present or a deep-seated antiseptic is desired we may use Bichloride of Mercury 1-10,000 to 1-6000 for irrigation or peroxide of hydrogen to cleanse and remove muco-purulent accumulations. The salts of silver in solution are beneficial as a wash and especially indicated as a topical application where ulceration occurs in the more chronic conditions that develop.

Alum solution with deod, tr. opium or Amyl and deod, tr. opium alternating with the former is both curative and palliative and are my favorite remedies in proctitis.

Desquamating Dermatoses in Infants.—Hallez remarks that treatment has to rely more on hygiene than on drugs; baths and salves are usually irritating. For internal treatment he advises very cautious epinephrin or thyroid treatment, in small doses, the latter especially when there is intense seborrhea.

Participation of the Meninges in Acute Infectious Rhinitis and Tonsillitis.—Goppert has been surprised to find the Kernig sign positive in a large proportion of infants and other children with ordinary acute infectious processes in the nose or throat. He accepts this as evidence that the infectious process had involved the meninges more or less. This explains the unusual restlessness or apathy observed in certain cases, and it also warns that, even if the child has apparently recovered, yet it should be spared unnecessary strain for a time. This may ward off the headache and depression that sometimes follow and long persist after an apparently harmless febrile infection in the upper air passages. The Kernig sign will give the clue to diagnosis and treatment.

INTESTINAL OBSTRUCTION FROM TUMOR: ECTOPIC GESTATION.* CASE REPORTS*

By J. GARLAND SHERRILL, Louisville.

I have had two rather interesting cases in the last few days. Both patients were operated upon and the specimens are exhibited.

CASE 1. —A male, aged thirty-eight, had been drinking to excess for several days prior to his sudden illness. He was fairly well nourished but still extremely nervous from his drinking bout when I first saw him, which was January 20th, 1925. He was taken ill suddenly the day before and complained of severe abdominal pain, and was still suffering when I first saw him. His physician thought perhaps the symptoms were due to the effects of alcoholism and indigestion, but did not give purgatives and the rectum was emptied by enemata. A small amount of gas had been passed.

The following morning when I saw him there had been no further discharge or gas nor had he defecated. His abdomen was ballooned, greatly distended and had especially over the lower portion. He appeared to be in desperate condition, pulse 140, abdomen markedly distended and generally tympanitic. No tympany could be elicited over the liver region. He was advised to go to the hospital immediately, and was taken to the Sts. Mary and Elizabeth Hospital. He had vomited only once and that was during the night of January 19th. There was no vomiting on the morning of the 20th. A large quantity of dark (brownish-black) material, such as usually seen in intestinal obstruction, was removed by gastric lavage. We removed two quarts of this material. The distended abdomen softened a little but did not become flat.

At operation the same afternoon about 2:30, for intestinal obstruction, the possibility of malignancy was recognized; but the man did not show any evidence of it by loss of flesh. When the abdomen was opened the right colon was found distended to three or four times its normal size, the circumference being twenty-four inches. The ascending colon was widely dilated and the transverse colon also showed considerable distension. The small intestine was distended but not markedly so. The ileocecal valve was apparently competent. Fluid did not flow backward from the cecum coli into the small intestine.

The obstruction was found at the rectosigmoidal junction. The intestine at that point was thickened and somewhat firm, but

*Read before the Louisville Medico-Chirurgical Society.

not with the indurated hardness ordinarily seen in malignancy. The involved area was more than two inches in extent and the intestinal lumen was narrowed to less than the size of a lead pencil. The question arose what method should be used in handling the situation. The right colon could not be reached with sufficient freedom to institute drainage without soiling the peritoneal cavity. On opening the cavity there was a rush of greenish-brown material. The abdominal wall when incised looked exactly like the wall of a recent cadaver. The tissues were friable, brownish in color and did not bleed. There appeared to be an extensive destructive process going on.

After locating the point of obstruction the cecum was immediately loosened from its attachment at the ileocecal junction, the peritoneum pushed to the outside and the intestine brought toward the median line. In that way I was able to bring the mass into the wound. The mass was clamped on either side and excised. The field was carefully protected by gauze packing and soiling of the peritoneum thus prevented.

It was then a serious question what further steps to take. My first intention was to make an anastomosis laterally and close both ends of the intestine. However, I did not do that because it would have prolonged the operation and greatly increased the hazard. It was finally decided to place a tube in each end of the severed intestine and close the abdomen as quickly as possible. The operation was completed in about fifty minutes.

The patient left the operating table almost pulseless. He did not show any great amount of surgical shock but was greatly prostrated. He was placed in bed and 700 c.c. normal saline solution intravenously administered. His pulse improved rapidly and he appeared to be doing well until about four o'clock on the morning of January 21st, when the pulse suddenly failed and he died at seven o'clock.

On opening the mass after removal the intestinal lumen was found to be almost completely occluded, and in the narrowed portion was a grapefruit seed. The mass macroscopically appears to be thickened fibrous tissue. The abdominal distension was enormous and there was evidently some leakage from the intestine judging from the odor. The man died from intense toxemia which occurs in cases of intestinal obstruction.

In intestinal malignancy there are often no noticeable symptoms until sudden obstruction supervenes. This patient had no signs of trouble until the constriction became practically complete. Such cases are almost uniformly fatal. Malignant disease is one of the most fatal types of intestinal obstruction.

This case emphasizes the fact that patients should have the intestinal canal examined, fluoroscope and roentgen-ray after a barium meal from time to time even though there may exist no symptoms because in that way it is possible to detect early manifestations of disease which could not be discovered otherwise. This is true whether the disease be malignant or luetic in type.

Case II. The second patient was seen recently, a woman thirty-three years old whose history seemed to be typical of ectopic gestation. Unilateral (left) salpingo-oophorectomy and appendicectomy had been performed several years ago. Menstruation had been regular until January 3, when the expected period failed to appear. Two days later the flow began and she had been bleeding since. There was no history of menstrual irregularity prior to that time. She had cramping pains at times and some small clots had passed but no membranes. During the last forty-eight hours she had been having quite severe intra-abdominal pain.

When I saw her January 22, 1925, she was somewhat pale but not markedly so. Her fingernails were slightly livid. Pulse about 75 and very compressible. Blood count showed erythrocytes 3,730,000, leucocytes 11,000. Lymphocytes 65 per cent, hemoglobin 75 per cent. I gave it as my opinion that it was a case of ectopic gestation unruptured.

Bimanual examination revealed a small, irregular mass in the right side of the cavity which was firm and gave the characteristic "feel" of an ovary. I was unable to accurately outline the oviduct.

While I believed it was an ectopic gestation, fearing that a mistake might be made, and the abdomen opened in the presence of uterine pregnancy, I decided to investigate further before beginning the operation. Examination disclosed the uterine cavity empty.

On opening the abdomen a considerable quantity of free blood was found. This was escaping from a ruptured hematocele of the right ovary. The right oviduct was attached as usual and from the middle portion to the distal extremity contained an irregular elongated mass one and a half inch by one inch in its widest portions. This was easily removed together with the oviduct and portion of the right ovary. Part of the ovary was removed because that was the easiest way of controlling the hemorrhage. The oviduct was unruptured and there was in consequence no escape of material therefrom.

The patient reacted normally from the operation and will doubtless make a satisfactory recovery. The appearance of the specimen indicates that the ectopic pregnancy was about four weeks in duration. It is rather

unusual for the diagnosis to be made and operation performed that early in the history of ectopic gestation.

DISCUSSION

L. Wallace Frank, Louisville: The specimens exhibited by Dr. Sherrill are extremely interesting, especially the tubal pregnancy. I would to ask whether he curetted the uterus in this case. Possibly the gestation was so early no decidual membrane had formed. It is my impression that decidual membrane always forms in the uterus in ectopic gestation, and for that reason I am a little surprised that he found the uterine cavity empty.

During the past summer we treated a patient with ectopic gestation of seven or eight weeks' duration according to the history. After operation there was bleeding from the uterus for eight or nine days after which time she expelled the entire decidual membrane and following this the bleeding ceased.

In regard to the first case: The specimen does not look to me as though it was malignant. Certainly Dr. Sherrill pursued the proper course in his management of the case and it is rather unfortunate that the outcome was fatal.

John W. Price, Jr., Louisville: In regard to the first specimen exhibited by Dr. Sherrill: I do not believe anyone can say positively from its gross appearance whether the tumor is malignant or not. However, we all know that the percentage of malignancy is very high as a cause of obstruction in the large intestine. If I am not mistaken malignancy furnishes about ninety per cent of large intestine obstructions. Malignancy should therefore be expected in all such cases if the patient is more than forty years of age.

As to the second specimen: The subject of ectopic gestation is always interesting and I think Dr. Sherrill is to be congratulated on his early diagnosis and operation in this case. While the history was not typical it was very suggestive. There was irregularity in menstruation, then hemorrhage and abdominal pain, and according to the history one tube and oviduct had been removed. We know that when one tube is infected the opposite tube is practically always involved, and this probably happened in the case reported. Dr. Sherrill is to be congratulated on his diagnosis and the result.

J. Garland Sherrill, (In closing): The corpus luteum in this case was apparently the site of the hemorrhage from the ovary itself. Hematoma of the ovary had formed and become distended. There was not a very large amount of blood in the cavity, probably not more than two or three ounces. The corpus luteum is always present in cases of ectopic gestation. The pregnancy was probably not more than four weeks

in duration. I think the history was typical, menstruation had been previously regular, then a period was missed January 3. On January 5, the menses appeared and from that time on she had been constantly bleeding. When there is a history of continuous bleeding with cramps like labor pains one should be suspicious of ectopic gestation, in the absence of any signs of abortion. The external os is usually soft and dilatable.

With reference to the intestinal tumor: My experience has been that malignancy of the colon in a great many instances appears in the form of a tape or band which by extension and contraction finally causes complete occlusion of the intestinal lumen. In this case there was no fungus tissue such as frequently seen in later stages of the disease. I do not mean to say positively that this tumor is malignant, because in its fresh state I was unable to make the diagnosis of malignancy and certainly would not feel justified in doing so now.

In the beginning malignancy of the large intestine often occurs in the form of a band which narrows the lumen like a tape tied around it. I have seen such bands not more than half an inch in width. The development is inside the intestine rather than outside, and the tumor develops until the intestinal lumen is occluded. In this case the lumen was constricted to one third the size of an ordinary lead pencil; the intestinal wall was rigid and extensively thickened. There was not a great amount of ulceration, the constriction being due to new tissue formation in the intestinal wall. This occurs in sarcoma, carcinoma and also in luetic involvement.

Continued observation, with a larger number of cases and over a longer period of observation, has convinced Udo J. Wile and Lester M. Wieder, Ann Arbor, Mich (*Journal A. A.*, June 6, 1925), of the value of tryparsamide in producing betterment in almost 30 percent. of a carefully selected group of cases. In the main, clinical improvement was not paralleled by striking changes in the spinal fluid, many of the most strikingly improved patients retaining, after protracted treatment, the changes in the fluid were found at the original examination. In a small group of cases in which spinal fluid change was noted, clinical betterment was found to be associated with such improvement. When improvement occurred clinically, this was indicated in a large majority of the cases during the first and second courses of treatment.

MALIGNANT DISEASE OF LIVER.* CASE REPORT*

By J. A. FLEXNER AND MORRIS FLEXNER,
Louisville.

The patient, a woman aged sixty-one years, from whom the liver exhibited was obtained as partial autopsy, had been under my observation for more than twenty years. Two weeks before death she called me to see her and her complaint was thrombophlebitis of one of the veins on the inner aspect of the right thigh. As there was no one to properly care for her at home, she was removed to the Norton Infirmary. In the course of routine physical examination this tremendous liver was discovered. The liver extended below the umbilicus and within two inches of the iliac crest. It was rough and nodular on palpation, and many nodules can be seen in the specimen.

I had known this patient rather intimately for more than twenty years, she had frequently been to consult me, and I had seen her at her home. In all that time, so far as I am aware, she never complained of any symptoms attributable to this enormous growth. Every part of the liver seems to be involved.

At the partial autopsy Dr. Morris Flexner discovered a hard nodule in the tail of the pancreas which is probably the initial focus of the disease. No free fluid in the abdominal cavity could be determined clinically. There was no jaundice at any time. I have never before seen a cancer of the liver of that size where the patient did not have pronounced jaundiced and terrific itching of the skin which accompanies that type of jaundice.

After being taken to the infirmary the patient failed rapidly and died from sheer exhaustion.

Remarks by Dr. M. Flexner: We first had permission to merely examine the abdominal cavity to determine what the tumor was; but after some persuasion we were permitted to remove the liver and pancreas. The liver is tremendous in size and contains many metastatic nodules. There can be no question about its being malignant.

Dr. B. W. Bayless made a roentgen-ray examination of the gastro-intestinal tract with negative results. As we all know metastases to the liver are usually from the gastro-intestinal tract particularly from the stomach but in this case nothing was shown by roentgenoscopy.

At the partial autopsy we examined both the stomach and duodenum and no lesion

found. On further examination however, we did discover a good sized nodule in the tail of the pancreas which I think was undoubtedly the primary focus. Attention is called to the size and density of this pancreatic nodule.

DISCUSSION

Stuart Graves, Louisville: Judging from the appearance of the specimen, if the uterus, stomach and duodenum can be eliminated, the growth was probably primary in the pancreas. If Dr. Flexner will send the specimen to the laboratory I shall be glad to make a sections to see if we can discover the line between neoplastic cells and normal cells.

As to the absence of clinical symptoms: I recall one case coming under observation in the city hospital where there was a well advanced cancer of the liver that had not been discovered clinically. The growth was metastatic.

J. Garland Sherrill, Louisville: The particularly interesting feature about the case reported is the location of the primary growth which is evidently in the tail of the pancreas. Most of the primary malignant growths in the pancreas involved the head. In my experience a primary cancer of the liver is extremely rare. The great majority of the cases are secondary, either to growths in the uterus, in the gastro-intestinal tract or about the gall bladder region. It may be difficult to differentiate between primary and secondary growths, but primary cancer of the liver is extremely rare, I think less than two per cent of all cancers of this organ. Pain is not a distressing symptom in the cases that I have seen. The patient may complain of gastro-intestinal disturbance, and examination discloses a greatly enlarged liver with many nodules. Pain only occurs in cancer when there is destruction of tissue or pressure.

Sometimes there is considerable difficulty in differentiating clinically between syphilis and cancer of the liver, because there is very little pain in either, and the Wassermann reaction is negative in at least one third the cases of syphilitic involvement, that is two thirds of the cases are positive and one third negative. I exhibited before this society at one time a man with a negative Wassermann reaction, still the tumor disappeared promptly under anti-leucic medication.

A diagnostic point worth remembering is that nodular conditions of the liver are nearly always due to malignancy, whereas the syphilitic liver may be enlarged and irregular yet it does not present nodules. That has been my experience.

B. W. Bayless, Louisville: The gastro-intestinal tract in the case reported was negative on roentgen-ray examination. Despite the presence of this enormous liver, with many nodules and masses, there was no obstruction to the pyloric orifice or elsewhere in the gastro-intestinal tract. Nothing could be definitely seen except this tre-

*Clinical report with exhibition of patients before the Louisville Medico-Chirurgical Society.

menous enlargement of the liver.

J. Rowan Morrison, Louisville: Like Dr. Sherrill, I have seen two or three patients with large cancer of the liver but in whom pain was a marked symptom, until a week or two before death. I have never seen a cancer of the liver as large as the one exhibited by Dr. Flexner, even one obtained at autopsy, but I have seen two or three of considerable size in whom there was no evidence of jaundice.

Ben Carlos Frazier, Louisville: I think one of the most interesting features in the case reported is that it shows how people conceal such conditions from their family and friends perhaps for years. It may be some of them do not know they have anything the matter with them, but if they do they are careful not to tell anybody else. It is surprising the great amount of pathology that may be carried by the patient without being recognized until shortly before death occurs.

Louis Frank, Louisville: Not infrequently do we see cancer of the liver without clinical symptoms for a long time; such growths are nearly always secondary. Metastases to the liver may occur from breast cancer, particularly on the right side. The very hard, scirrhus type of breast cancer may exist without symptoms and unknown to the patient for a long time.

I happened to see this woman by the courtesy of Dr. Flexner and carefully examined her breasts to determine if there existed a small nodule which had been overlooked. Nothing was discovered.

Dr. Frazier mentioned the fact that patients sometimes carry a tremendous amount of pathology apparently without their knowledge: That was explained by Dr. Sherrill, i.e., that these growths are not painful in the early stages of their development, therefore, many of the patients with cancer are beyond medical or surgical aid when we first see them. Cancer involving the intestine, the liver, gall bladder and other internal organs including the stomach and duodenum, in many instances, has reached an advanced stage before the attention of the patient or the physician is called to it.

The specimen exhibited is most interesting and I hope Dr. Flexner and Dr. Graves will make further report after microscopic examination. It would be interesting to know whether the growth is really primary in the pancreas. Primary cancer of the tail of the pancreas is very rare.

Morris Flexner, (In closing): I think most cancers involving the pancreas are primary. Personally I do not recall having seen a case of metastasis to the pancreas from any other source in the abdominal cavity. It must be very unusual.

In regard to the differential diagnosis between syphilis and cancer of the liver: That is a question which frequently arises in the medical wards

at the City Hospital where we always have patients with enlarged livers. It is sometimes difficult to decide whether the enlargement is associated with malignancy, lues, or cirrhosis.

The Wassermann may be of some help, though at times in elderly people with visceral syphilis it is negative. The type of nodules felt will often help one decide. The losses in luetic cirrhosis are larger, deep incisions may be found.

MALARIA.*

By R. C. BURROW, Cunningham.

The history of the development of our knowledge of the malarial fevers reads like a romantic fable wherein mighty giants of an hundred heads are met and conquered.

Laveran and Ross have been awarded the Noble prize in medicine, Gorgas has been signally honored by the Congress of the United States as well as by the American and Foreign scientific associations.

Craig distinguishes four main epochs:

First: From the earliest record to the introduction of Cinchona bark.

Second: From the introductions of Cinchona bark to the discovery of plasmodia.

Third: From the discovery of the plasmodia to the discovery of the method of transmission of the mosquito.

Fourth: From the discovery of the method of transmission until the present time.

Etiology and symptomatology are too familiar to need repetition here.

Diagnosis: Blood finding though not infallible are our best and quickest methods of diagnosis. Peripheral blood does not always show the parasites and spleen punctures is not practical and should never be undertaken except by the experienced operator. In the masked symptoms of the estivo-autumnal infections after the peripheral blood has been tested the therapeutic test used and typhoid has been excluded by bacteriological tests spleen puncture is justifiable as an attempt to clear up the diagnosis, with us the therapeutic test, though unscientific, is always used first. Fifteen grains of quinine and urea hydro-chloride are given on three successive days, if it controls the fever, skip three days and give two more, on the fourteenth day from initial dose, give another.

DIFFERENTIAL DIAGNOSIS.

In most cases we can exclude typhoid by the Widal reaction. The absence of tubercle bacilli in the sputum and the X-ray findings will help to exclude tuberculosis.

Malaria has been diagnosed puerperal fever after confinement, but careful examination and the all important blood culture should reveal the true nature of the malady.

*Read before the Carlisle County Medical Society.

TREATMENT.

The medical treatment of acute malaria is summed up in a word: Cinchona. While the parasitidal effect on some of the malarial parasites has been questioned by scientists yet clinically it is almost our infallible remedy when gotten in the blood stream in proper amounts, when failure results it is generally due to this. The estivo-autumnal parasite or the pigmented forms do not yield very readily but finally succumb. In the pernicious and some other forms the assimilation when not suspended entirely, is very poor and the oral administration of the drug cannot be relied upon but do not give up quinine and the cinchona salts when the oral administration of the sulphate fails, the amorphous alkaloid quinine is from three to five times as effective as quinine sulphate and may be given in proportionally smaller doses, it has no unpleasant effect, can be given in small tablets and is rapidly effective, a 2 or 3 grain tablet three times a day for a cure in this latitude. When this fails use a more soluble salt by hypodermic method or intravenous, also giving large quantities.

The superiority of quinine and urea hydrochloride for hypodermic use lies in its high solubility and local anesthetic effect. It will dissolve in its own weight of water, especially hot water.

While the cinchona salts are our chief reliance for the cure of malaria, conditions have to be met and specific remedies for that condition administered.

Cinchona salts act badly when the skin is dry and hot or the urine bloody or the bowels constipated, writhing and vomiting often calls for relief severe pain also often demands treatment.

In gelsemium we have an excellent remedy to moisten the skin and for the relief of pain. It also relieves the nervous condition produced by the cinchona. Veratrum should be combined if the fever is high and pulse full and bounding (sledge hammer pulse). Aconite in very small doses if pulse is small and thready.

With the small thready pulse with pallor the body covered with profuse perspiration, belladonna should be substituted for gelsemium.

Although considered physiologically and antagonistic we often give hypodermics of atropine while giving gelsemium with good results. The gelsemium relieves the pain and nervousness while atropine dilates the capillaries thus removing the obstruction to the circulation relieving the internal congestion and warming the body.

Avoid the coal tar anti-pyretics.

The nursing and the diet are the same as

in fevers in general until typhoid at least has been excluded, when the diet can be made more liberal. Keep up treatment until patient is cured, remembering that uncured malaria is a menace to the community and is just waiting for the anopheles mosquito to spread the disease.

GASTRIC SYMPTOMS IN EXTRA-GASTRIC DISEASES.*

By CHARLES G. LUCAS, Louisville.

Some one has said that the stomach is "the spokesman of the abdomen," and certainly we cannot but be impressed in the study of the large series of cases, operated and non-operated, with the number of cases that presented symptoms referable to the stomach where no pathology existed in that organ. Some years ago, Pottenger called attention to the importance of the study of pathological physiology in internal medicine and in doing this one is struck by the fact that the stomach is very often "the spokesman of the abdomen" in diseased conditions affecting practically all organs.

An analysis of the gastric symptoms based on the clinical diagnosis in 1,000 cases made by Blackford and his associates showed that in 25 per cent no recognizable organic pathological condition was found; in 6 per cent, they were unable to classify the condition; in 2 per cent, the complaints followed operations; in 35 per cent the pathologic condition was intra-abdominal but not in the stomach, and in 18 per cent the pathologic condition was systemic. This leaves 14 per cent of patients on whom definite gastric disease has been demonstrated.

Practically every part of the body may take part in conditions, reflex or toxic, that develop symptoms referable to the stomach; of these, the appendix occupies first place. The symptoms may be largely gastric, the so-called "appendicular dyspepsia" with fullness and heaviness, much gas, either gastric or intestinal, anorexia constipation, as a rule, with coated tongue and occasionally nausea. In some cases ulcer syndrome may be marked. There may be alternating slight tenderness in the right iliac fossa. In other cases, pain and soreness in the right iliac fossa is the chief symptom, increased by pressure of the examiner's hand. In some cases we have loss of weight, headaches, and in not a few instances, the neurasthenic complex.

Next in frequency to the appendix comes the gall-bladder. When the many infectious conditions that leave their mark on this organ are considered, we can easily understand why statistics show that in one out of every

*Read before the Third District Medical Society at Bowling Green.

ten adults who come to necropsy, gall stones are found in the gall-bladder, although only 10 per cent of those who carry gall stones suffer from marked symptoms due to them. In the majority of cases of cholecystitis, the digestive symptoms come and go for long periods of time. The symptoms, after a long absence, may recur because of indiscretions in diet, excesses from alcohol or over-fatigue from various causes. The chief complaint may be fullness and heaviness after food, possibly induced by the gravity effect of the food itself or by dragging on adhesions in the right upper quadrant. The presence of large amounts of gas with frequent and oftentimes ineffectual attempts to belch, occasional sour stomach with heartburn, the history of constipation and rarely nausea with vomiting when taken into consideration with tenderness under the right costal arch, all point to the gall-bladder as the offending organ.

Cardio-renal disease, especially with loss of compensation is often attended with gastric symptoms. Some months ago, a gentleman from the eastern part of the state consulted me because of "stomach trouble" which consisted in violent attacks of belching. Examination revealed a decompensated heart with enlargement of the liver and the presence of albumin and casts. It was with some difficulty that I succeeded in referring him to a colleague who could do him full justice, but in the course of a month, on one of his visits to the city, he called to express his thanks and to tell me how much he had improved.

It is not unusual to have gastric symptoms in atheromatous changes in the aorta and in angina pectoris. Attention has been called repeatedly that any exercise on a full stomach will often develop "indigestion," fullness, sour eructations, rapid heart and pains below the ensiform extending into the chest. A careful fluoroscopic study of the chest and gastro-intestinal tract will be of great help in making a correct diagnosis.

Diseases of the nervous system must not be overlooked. Years ago a friend of mine was subjected to a gastro-enterostomy in an effort to check the severe vomiting that would come on in attacks. This was before the days of the Wasserman or X-ray, but the clinical evidence of tabs was present. He died a few days after the operation. It must not be forgotten that in some cases of epilepsy, gastric aura may be present. Brain tumor and abscess are frequently attended with projectile vomiting and there are numbers of other conditions involving not only the brain but the spinal cord that require careful study to eliminate the gastric symptoms.

The kidneys play an important part also. It is a common experience to have a patient consult us for vomiting and gastric distress, coming on in attacks in whom urinalysis shows a large amount of albumin and an abundance of pus. Careful consideration of the history will show that these attacks are initiated with chills and sweats and the diagnosis is cleared up by a cystoscopic examination. In other cases, where nitrogen retention takes place with accumulation in the blood, Nature frequently attempts to eliminate through the gastric mucous membrane with marked uremic vomiting. Again, the vomiting that accompanies renal colic, and in one case, an accompanying pylorospasm, is not unusual and in not a few cases the appendix has been removed because of failure to make a complete study of the case.

It is not unusual for a case to present such symptoms as fullness and heaviness, pain at variable or fixed times after meals, sour stomach and constipation and yet a complete gastro-enterological study reveals no trouble with the stomach or bowels. But a careful examination of the chest will frequently show a beginning tuberculous process. Only recently I saw a woman of 32 who had spent two months at our local tuberculosis sanitarium and was allowed to go home because of her dissatisfaction with everything connected with the institution. When she consulted me some months later she had a marked reactivation of the entire upper left lobe and although she had a temperature of 103 degrees and a pulse of 130 at the time of the examination, I had much difficulty in convincing her that her gastric symptoms were all secondary to her tubercular infection.

Another source of trouble often overlooked is disease of the rectum. The reflex disturbance from irritation of this part often points to the gastro-intestinal tract, with nausea, vomiting, much gas with distension and usually constipation. It is the experience of all proctologists that many of the organic diseases of the rectum frequently present symptoms referable to the stomach as much as to the rectum itself.

Focal infection, always a pertinent subject, plays an important part. We know that multiple foci are common and can now explain why certain cases are relieved of their symptoms for a longer or shorter time by the fact that all foci have not been removed. The gastro-intestinal symptoms of multiple infections in the teeth, tonsils and nasal sin-

uses, the appendix, gall-bladder, duodenum, colon, the uterus and its appendages, and also the prostate and seminal vesicles which, in particular, are most frequently overlooked, require time, continued study and much patience to diagnose.

In gastrogenic diarrhoea dependant on an aehyilia, we not infrequently have nausea and occasional vomiting. Careful and continued laboratory studies of some of these cases ultimately show a pernicious anemia. In one case, a spleno-mycogenous leukemia with many gastric symptoms, a blood count made the diagnosis at once.

There are other conditions that might be mentioned. Changes in the endocrine glands are responsible for many marked gastric or intestinal symptoms. Clement Jones mentions a case of gastric ulcer occurring in a woman at the menopause who showed but little improvement on the usual rest cure, but with hypodermic injections of corpus luteum solution and epinephrin solution, ovarian and suprarenal gland internally, she made a symptomatic recovery. In discussing this paper, Sawyer relates the case of a young woman who had a large hemorrhage from the stomach with continued vomiting for three days. It proved to be a case of myxedema and was completely relieved by thyroid extract. McGlannon reports a case remarkable for the extreme emaciation and exhaustion occurring as a result of the digestive disturbances in association with exophthalmic goitre. Nausea and vomiting with rapid loss of weight and strength were marked. The basal metabolic rate was 47. Feeding through the duodenal tube and ligation in three operations made a great change for the better. Finally, the right lobe and isthmus were removed and she ultimately recovered completely. In some cases, we have diarrhoea, in others constipation in which an overactive or underactive thyroid is responsible.

This incomplete review of the causes of gastric symptoms in extra-gastric conditions serves to emphasize the necessity of thorough examinations in all our cases. With a careful history, complete physical and gastro-enterological X-ray examination, together with a study of the blood, urine, gastric contents, feces and a basal metabolic determination, we are in a position to weigh carefully all the evidences leading to a proper diagnosis.

THE ABNORMAL MENOPAUSE.*

By T. J. MARSHALL, Bardwell.

It is said but two things in life are certain: death and taxes. That may be, but for a woman there may be added a third: "The menopause," for every girl living will have to pass through the "Change of Life," unless she dies before she reaches that age.

While great changes take place at the menopause, yet the menopause itself, is not a disease, but as wonderful a phenomena as the beginning of the menstrual life. Why it is that a normal girl at a certain age begins to menstruate at regular intervals and continues until she reaches another certain age, to be interrupted only by one condition, pregnancy, is one of the mysteries. Of course, we know that the glands of internal secretion, at certain ages in life undergo changes relative to their size, and some we know about as to their secretion; these changes in certain glands bringing about this peculiar phenomena to a woman, and make these epochs (the beginning and the ending of her menstrual life) very critical periods for her unless every thing is normal and these glands are balanced and functioning properly; as Kelly so aptly says: "According as the menopause is well and safely passed will the woman be apt to enjoy good or ill health throughout the remaining period of her life."

If we are to recognize the abnormal it is imperative that we know the normal, but as my subject is to deal only with the abnormal, I will only touch some of the conditions that are present in a normal state at this time in a woman's life: The menopause, or change of life, or the change, or the climacteric, occurs usually between the ages of 35 to 50 years, sometimes at a younger or at a more advanced age. The one universal symptom is the cessation of the menstrual flow, which may be gradual or sudden. When gradual the flow becomes irregular and perhaps more scant, this irregularity lasting over a period of several months, sometimes a year or more and is manifested by certain symptoms, such as an increase in adipose tissue about the body, especially about the abdomen, and sometimes a few coarse hairs are scattered on the face. The woman is more or less nervous, has flushing and sweats, because of the vasomotor disturbance and, she may have more or less minor gastric disturbances. Anatomically the ovaries are smaller and harder and contain no ripening follicles, the uterus firmer and smaller, and the tubes atrophy: these are physiological changes and not pathological.

Artificial menopause may be induced at any age after puberty and is usually brought

*Read before the Carlisle County Medical Society.

about through the removal of the ovaries by surgery for a pathological condition, or by the use of radium or the X-ray for diseases at or near the pelvic organs. The menopause brought about artificially is usually sudden and the nervous manifestations are more pronounced and are best controlled by the use of glandular substances, such as the ovary extract or corpus luteum.

While the menopause is not a disease, there are certain pathological conditions that are prone to develop, or show themselves about this time. It is very seldom that a doctor is consulted by the patient for a normal condition, but when a patient comes to the doctor's office she has or thinks she has an abnormality; therefore, we, as doctors, should be alert and be able to diagnose any diseased condition and institute the proper treatment early, otherwise we may see death relieve the patient. I can conceive of nothing more humiliating than to have a woman die of cancer of some of the reproductive organs which had failed to be recognized by a physician at a time when a cure may have been effected.

Ashton says: "Menorrhagia and metrorrhagia are never caused by the menopause but always denote some pathological condition." The same author advises that any irregular bleeding from the vagina after the climacteric has been established should cause the physician to insist on an examination which will usually reveal a cancer, or some pathology.

An exaggeration of any of the customary symptoms may constitute an abnormal state and a pathological condition must be recognized early: If in doubt the woman should be referred to a doctor who can make a diagnosis; it behooves us to be on the lookout for any pathological changes; any bleeding between the periods or an excessive amount of blood lost should excite our interest enough to cause a careful examination to be made.

Cancer is the most important of all the causes of a menorrhagia or metrorrhagia, because if a cure is to be had the diagnosis must be made early, before the disease has progressed to any extent. When in doubt, a complete removal of the uterus and its appendages is the safest procedure, as the woman's reproductive age is at an end anyway, and by the use of the glandular substances the change is safely and comfortably passed. I do not hesitate to advise a woman about the menopause to have a hysterectomy if she has frequent or excessive bleeding and the cause can not be definitely established. I can recall two cases recently, one a married woman about 35 years of age having menorrhagia and metrorrhagia for four or five months in spite of treatment, after the removal of the uterus, which showed pathologically a fibroid

condition undergoing degenerative changes. The other woman, married, was about 45 years old with practically the same symptoms, except that she had been bleeding for a longer period of time, the pathological report was about the same as the other case. Both these women's lives were saved as the problematical conclusion is that both the uteri would have been carcinomatous in a short time, at least neither of these women could ever have borne children.

Endometritis may occur about this time and is evidenced by bleeding; report of a case, this married woman was 47 years of age, past history negative except that 3 or 4 years ago she had gastric ulcer with hemorrhage which responded to medical treatment, present complaint, few weeks ago sickness came on for the first time in a year, previously menstruation had gradually ceased. Examination showed the uterus in a normal position, external os partially open, and blood oozing from the os, cervix red and covered with mucus. The bleeding continued for about six teen days, the condition of the cervix improved under rest and local treatment, but she continued to bleed, when a curettment was done and the scrapings sent to the laboratory and the findings reported to be a granular endometritis. After more than 4 years there has been no return of any uterine bleeding and the woman has remained in her usual state of health.

Polyps cause excessive bleeding and should receive the proper surgical treatment, sometimes requiring a hysterectomy.

Fibroid tumors cause uterine hemorrhage, abdominal enlargement and vesical symptoms, and furthermore the menopause may be deferred for several years on account of the fibroid keeping up the bleeding, a careful examination should enable us to institute the proper surgical treatment.

Ovarian tumors may develop during or at the menopause. Among the tumors of the ovary are mentioned multilocular cysts, dermoid and malignant tumors, I mention them that we may be on our guard. Several years ago I was connected with a case, a woman at the menopause with an ovarian tumor, at operation the tumor proved to be dermoid cyst having 3 or 4 teeth and considerable coarse hair. This has been my only experience with a dermoid, but I have seen several tumors of the ovaries in women at the menopause, most of them refused operation and perhaps lived out their allotted time.

About this time in women who have borne children we are apt to find a relaxed vaginal outlet, which causes the patient to complain of a bearing down of the pelvic organs. This condition calls for surgery.

Tumors of the breast make their appear-

ance usually about the menopause, and I will call attention to them because of the frequency of cancer and that we may not delay surgery when indicated, and when in doubt it is better to sacrifice the breast than it is to lose a life.

The nervous symptoms should receive careful attention, such as rest and sedatives, as melancholia and other forms of insanity may develop at this period.

Gastric disturbances may give the woman considerable trouble and should receive careful treatment. Drs. Friedenwald and Morrison³ report a case of ulcer of the duodenum in a woman 53 years old that was not entirely relieved by means of an ulcer treatment and a cure was not effected until corpus luteum had been administered for some time.

Summary: The menopause is a physiological and not a pathological condition.

Menorrhagia and metrorrhagia are not caused by the menopause but denote a pathology.

If in doubt, subject the patient to a hysterectomy.

Cancer of the pelvic organs and also of the breast is prone to develop at the menopause.

For the nervous and gastric disturbances some of the glandular substances may act well.

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In New York some New York otologists, with others interested in the problem, instituted an organization in 1910, which was designated the New York Organization for the Hard of Hearing. From this parent organization other clubs were gradually created, until at present many of the larger cities throughout the Union have such clubs. In 1919 these organizations, which now exist in thirty-five cities formed a national organization known as the American Federation of the Organizations for the Hard of Hearing. This federation is an active, enthusiastic corporation composed of a body of intellectual alert American citizens who know what they want and are adopting the best methods to attain it. Looking into their faces, as I did in addressing them last year in their annual meeting, one could not but be impressed with their earnestness of purpose and desire for advice and direction. C. W. Richardson, Washington, D. C. (Journal A. M. A., June 6, 1925), urges that all otologists should be in touch with the organization in their immediate community, or with the federation, in order to aid in guiding their work and assist them in shaping their course

ACUTE GLAUCOMA.*

By J. F. DUNN, Arlington.

I shall not attempt today to display a deep complicated paper on the subject of glaucoma for two specific reasons, viz: 1. I could not do so unless I reproduced a good author. 2. I believe that all papers read before our society should be plain, practical, and to the point. Therefore, it is my intention to make this paper as simple and concise as possible.

The subject of glaucoma has heretofore had a repulsive effect on me and I looked upon it as being a very complicated, mysterious disease, of which I knew very little, but, after some consideration of the subject, I have discovered that it is a very simple condition after all.

We shall first take up the definition of the subject and then enter into its discussion.

The best definition I have seen is given in a nutshell by Gould, who says it is a disease of the eye, the essential and characteristic symptom of which is an abnormally heightened intra-ocular tension, resulting in hardness of the globe, excavation of the optic disc, a restriction of the field of vision, corneal anaesthesia, color halo about lights, and lessening of the visual power that may, if unchecked, proceed to blindness.

So it seems from his definition, that the chief and leading symptom is increased tension within the eyeball. Dr. Fisher of the Eye, Ear, Nose and Throat College of Chicago, will not allow his students to call this disease "glaucoma" but insists that they call it "plus tension" instead. He says that the word "glaucoma" is a mis-nomer.

Then, if glaucoma be nothing but a swelling of the contents of the eye ball, let us consider what causes this swelling and also the effect it has upon the eye structure, for it is only by understanding fully the causes of this increased tension that we are able to relieve it.

There are three kinds of fluid within the eyeball: the blood in the blood vessels, the lymph in the lymph channels, and the intra-ocular fluid which gives nourishment to the vitreous humor and crystalline lens and supplies the aqueous humor for the anterior chamber. This intra-ocular fluid passes over the crystalline lens, through the pupil, into and traverses the anterior chamber of the angle formed by the junction of the iris and the periphery of the cornea: here it is by diffusion taken up by Schlemm's canal and returned to the venous system and then carried away from the eye. So we have a steady stream coming through the eye and escaping. De Schwenitz says that glaucoma is not due

*Read before the Carlisle County Medical Society.

to an increase of secretion but to a decrease of excretion being due to an inflammatory process of the iris and ciliary body, which causes the base of the iris to adhere to the cornea, thereby closing up the infiltration angle and preventing the escape of fluid from the eye. Then if the fluid is continually coming into the eye and cannot escape, we naturally have a rise of tension. This tension has been divided into 3 stages, viz: $T + 1$ which is a slight increase, $T + 2$, a still greater tension, and $T + 3$, or stony hardness. These stages can only be determined exactly by the use of a tonometer, however, one can by continual practice, come pretty close to it by palpation.

As this tension becomes greater we soon have a bulging at the weakest points as follows: 1. The nerve head or the point where the optic nerve enters the eye ball. This is pushed backward, which condition is called "cupping" of the nerve head. 2. There is a bulging forward of the lens and iris which encroach onto the anterior chamber thereby lessening the depth of this cavity and in some cases completely obliterating it. That being the case—a bulging backward and a bulging forward—we find the antero-posterior diameter much longer than in a normal eye.

What else do we find as a result of this increased pressure? We find this oedema extending to the surrounding structures—the iris, the crystalline lens, the cornea and the conjunctiva, which are affected as follows: The iris is pushed forward toward the anterior chamber and becomes indistinct, also the veins are dilated, tortuous and often there are small hemorrhages of same.

The lens also is pushed forward and is oedematous, often leading to cataract formation.

The cornea, on account of the oedema, loses some of its transparency, thereby assuming a hazy appearance, being described by some as having the appearance of steam on a window pane.

The conjunctiva becomes hyperemic and the episcleral vessels become large and tortuous.

I have given a brief sketch of the pathology of glaucoma, but the main thing that interests the general practitioner is how to recognize it early and what to do for it. It is extremely urgent that this disease be recognized early and the proper treatment instilled, otherwise, the eye sight will be lost or greatly impaired. So we will next consider the symptoms, and will presume that a patient suffering with acute glaucoma has just come into our office for diagnosis, and we have seated him in our office chair. We take his history and find that he complains of two symptoms, viz: pain and impaired vision.

The pain is located over the temple and forehead, resembling a severe neuralgia. It comes on or grows worse in the latter part of the night and is so severe that it often induces nausea and vomiting. He says that he is almost blind in the eye, which he believes is due to his intense pain. We next proceed to inspect the eye, and we find the conjunctiva and sclera congested, the cornea cloudy and, as we have already stated, steamy. The pupil is larger than in the unaffected eye, and, as a rule, oval, with the long diameter vertical. We palpate both eyes and find the affected eye more tense. I want to add just here that we should make a practice of palpating as many eyes as possible both normal and abnormal, and in this way we can educate our fingers to detect any deviation from a normal tension. We test his vision and find it greatly reduced, often as low as light perception only. There is anesthesia of the cornea which may be partial or complete. There is practically no photophobia.

DIFFERENTIAL DIAGNOSIS.

The disease with which glaucoma is likely to be confounded is iritis, but there are two prominent symptoms present which should prevent an error of this kind, viz: the condition of the pupil and the increased tension. In iritis the pupil is smaller than in the unaffected eye, while in glaucoma it is always larger and generally irregular. In glaucoma the tension is increased, while in iritis it is unaltered. These are two main guide posts which will as a rule lead us to victory in making our diagnosis. There are several other fine points of differentiation, including the use of the ophthalmoscope, etc., which do not interest the general practitioner, therefore, we shall not consider the question of diagnosis any further, but will next take up the treatment.

The expectant plan of treatment in glaucomatous attack is disastrous, in fact, there is no other disease of the body in which the wrong kind of treatment may do so great a damage as in glaucoma. If you are in doubt as to your diagnosis, better do nothing than to do the wrong thing. I can not agree with one of my former teachers when he said, if we are in doubt as to a diagnosis in an eye disease, give atropine. This rule may work in all cases except glaucoma. If I were to have a rule it would be, if in doubt give anything in the curriculum *but* atropine. I believe it would be better not to give atropine in iritis than to give it in glaucoma.

As to the real treatment of glaucoma, I know of nothing new, in fact, I believe there has been less progress made in the treatment of this disease and less difference in opinions than any other disease of mankind.

As we said in the beginning of this article that this increased tension is caused by the iris adhering to the periphery of the cornea, which closes the outlet of the eye, then it is our duty to break up this adhesion by drawing the iris away from the cornea. This can be done often by giving a myotic, which has a tendency to close down the pupil and break loose the attachment of the iris, thereby permitting the escape of intra-ocular fluid, and our tension will be gradually restored to normal. Eserin sulphate 1 to 4 grs. to the oz. instilled every 1 to 2 hours will often accomplish this purpose. Pilocarpin is also very valuable.

The temple may be leeches, hot formentations applied to the eye, and morphine hypodermically for relief of pain.

If our myotics fail to reduce the tension, an iridectomy should be done. Occasionally all these remedies fail to relieve and our tension increases to plus 3 or "stony hardness," then it becomes necessary to remove the eyeball.

As to the internal treatment, it is a good plan to purge the patient in the beginning and give sodium salicylate in large doses. If you are suspicious of syphilis, some form of salvarsan is required.

CONCLUSIONS:

1. Glaucoma is a serious disease and tends toward blindness.
2. An early diagnosis is imperative.
3. Stay off of atropine when in doubt.
4. Eserin should be begun early, bringing the pupil down to a very small size and holding it until all symptoms subside.
5. Any case failing to respond to eserine or pilocarpin should be subjected to an iridectomy.
6. Every case should be watched afterward and upon the first approach of the old symptoms, the usual treatment should be administered at once.

Emetin Treatment of Bilharziasis.—Bonnet reports the cure of a case of bilharziasis under nine intravenous injections of emetin at intervals of two or three days, the doses increasing from 2 to 10 cg., and then six injections of 10 cg. each on alternate days. After suspension for six days, another series of 10 cg. was given at three day intervals. The drug was discontinued the fifty-third day. Aside from the characteristic asesthenia under this treatment and tendency to vertigo toward the last, there were no appreciable by-effects. No living parasite or living ova could be found after the fifteenth injection.

INFECTION OF THE LUNG WITH VINCENT'S SPIRILLUM.*

By M. Y. MARSHALL, Henderson.

The report of Dr. Dabney of "A Typical Case of Vincent's Angina," in the April, 1925 issue of the Kentucky Medical Journal suggests the reporting of this very atypical case of the same infection. I have not been able to find any similar cases reported, although it is, of course, probable that there have been similar reports.

The patient, a white male, age 26, was admitted to The Mosley Hospital on April 2, 1925, with a probable diagnosis of acute endocarditis. His history states that for the past two weeks he had been confined to his bed with symptoms of multiple arthritis. Practically all the large joints were involved, but there was very little redness or swelling of the joints, only severe pain. He had been running an irregular fever during this time, and for the past two weeks or so has had occasional attacks of dyspnea and palpitation. He states that he has had no sore throat, cough or sputum.

On examination we found a young man, considerably emaciated and evidently very ill. On any motion he complained of extreme pain, in the joints, although the joints were not reddened or swollen. There was a slight pyorrhea alveolaris, but this was not marked. The throat was negative. There was a soft blowing systolic heart murmur and a few scattered rales over both lungs. The chest and abdomen were otherwise negative. It was soon discovered that, contrary to the patient's statement in his history, he was expectorating a considerable amount of prune juice colored, very foul smelling sputum. This was negative for *B. tuberculosis*. A blood culture and a blood Wassermann were both negative. The urine was negative, hemoglobin 70 per cent, white blood cells 15,000, with 88 per cent polynuclear. The X-ray report of his chest is as follows: "Heart negative. Lungs: marked hilum thickening on right, with apparent cavitation in a dense area at the base of the upper lobe. No other definite areas of consolidation, but an increase of density in the middle portion of the periphery of the right lung field. Marked thickening of the upper lobe bronchial tree on the left, with some fine mottling throughout both lungs." He was running a remittent type of fever, with daily remissions from 101 to 98 degrees F. A probable diagnosis of pulmonary tuberculosis was made on the basis of those findings, in spite of the negative sputum.

On still searching for tubercle bacilli in the sputum about the third day after admission I noticed what appeared to be spirilla,

*Read before the Daviess County Medical Society.

although these were very faint in the Ziehl-Neelson preparation under examination. On making a simple methylene blue stain of the sputum, however, it was seen that Vincent's spirillum and *B. fusiformis* were present in enormous numbers, and in almost pure culture.

He was put on intravenous injections of neosalvarsan. Three doses were given, at two day intervals, of 0.15, 0.3, and 0.45 grams. At the end of this time his temperature was normal, there was no more sputum and no more joint pains; and the patient left the hospital feeling rather weak, but otherwise well. He was given three more doses of 0.6 grams at weekly intervals, by which time he had gained 15 pounds, was back at work and said he was fully recovered. He was, of course, also sent to the dentist to have his pyorrhea taken care of.

This whole picture of a severe and almost a fatal illness was, I feel sure, due to infection of the lung with Vincent's spirillum and its companion *B. fusiformis*, the primary site of infection being, probably, around the teeth. In the light of the X-ray findings, I think we must conclude that the pathology consisted of an abscess at the root of the right lung. As though to make the diagnosis doubly sure, his nurse, on the day following the finding of the organisms in his sputum, showed up with a typical tonsillar ease of Vincent's Angina.

AUTO SUGGESTION.*

By WILLIAM H. EDWARDS, Danville.

I have been troubled with constipation and for a number of years have taken some of all of the liver medicines, cathartics, laxatives, and purgatives. During the month of September this year, I was cut off from my favorite purgative, Sal Hepatica, and in looking around for a substitute, I decided to try auto suggestion. That is, I suggested to myself that I drink half a pint of cold water on rising in the morning and going to the stool two or three times a day whether I felt like it or not.

I accidentally discovered that sitting up straight on the toilet and looking up was a help. I had very little success the first day, a little more the second, and so on, until by the fifth day, I had a well developed case of acute diarrhea.

Now faith without works, is dead, being alone; but faith with works is alive, and works wonders.

During this time my diet consisted of plain and whole wheat bread, milk, butter, boiled beef, fried bacon and eggs, oatmeal, grape-nuts, corn flakes, fruits and vegetables, and baked chicken.

THE CLINICAL SIGNIFICANCE OF ABDOMINAL PAIN.*

By W. A. BRYAN, Nashville, Tenn.

Three propositions deserve to be laid down in the beginning:

1. That pain is one of the most important indicates that serious pathology is present in the abdomen; a symptom which alone often is capable of convincing the patient of a dangerous condition, and is utilized, perhaps too often, by the surgeon to lead his patient to the operating table, sometimes too hastily, sometimes with too little study of collateral evidence.

2. That pain in the abdomen, or referable to it, which subjectively amounts to the same thing, is frequently present, intense unendurable mayhap, when there is no surgical lesion present; and what means more perhaps to the chagrin of the hasty surgeon, when there is no lesion of any description in the abdomen. What is more, the source of pain may be remote and of such nature that no amount of postoperative explanation can be made to prevent a true revelation of the facts later on. I have sometimes thought this might be one of the places where angels fear to tread.

3. That serious, most serious, fatal lesions, surgical and non-surgical, exist in the abdomen, which cause no pain as such, and which are responsible for their full share and more of mistaken diagnoses. It is precisely here that the interpretation of hidden conditions by collateral symptoms, by reflex disturbances, by perversion or deviation of function elevates the doctor from the status of mechanic to that of philosopher, who by accumulation of experience and ripeness of wisdom may still be able to pilot the ship of diagnosis safely to port when the cynasure pain is lost in the fog.

Pain makes diagnosis easier, which is not saying much. It makes it earlier which is saying much. The patients who suffer come sooner for study. The people have a false and fatal philosophy that what doesn't hurt can't harm.

Reverting to a study of that phase of pain referred to in item number one, it may be well to rehash a bit of the old information on pain. And I may very appropriately say here that all that is known of pain avails nothing unless the physician takes the trouble to inquire about, and the patient has the intelligence and the integrity to reveal, the true history of the pain and its nature. I find patients now and then who think the examining doctor should be able to examine them and learn all he may need to know, making

*Read before the Boyle County Medical Society.

*Read before the Third District Medical Society at Bowling Green.

his findings and their agreement with the patient's own feelings and observations a criterion of the doctor's ability; or they actually lie about the facts, forcing us to find our way through physical findings alone, a fact often difficult, more often, if the case is intricate, impossible; or they are ignorant and unobservant and present a tangled net of statements from which a prophet could scarcely surmise the truth. In dealing with such cases I have found it very helpful to call these verbal wanderers rigidly and, if necessary, sharply back to the path of specific answers to the questions put.

Pain may be constant or periodic. It is not sufficient to know that it is one of these; if constant does it vary; if it varies what causes the variation, or what happens in connection with the variation; if it is periodic what are the periods, at what time of day, in what relation to the patient's habits, in what relation to his meals, what else happens, how long does it last, how severe, what is it like, what relieves it, what collateral symptoms and signs are present. The simple story of pain is to me almost valueless; it must fit into a group of symptoms that will have a meaning in the final interpretation.

In surgical lesions the pain may be of so great intensity as to cause us to feel fairly safe in excluding certain surgical lesions on this count alone. Conversely, if some circumstances should cause the pain to be milder than usual the lowered intensity may cause us to misinterpret in favor of the milder lesion. One is almost safe in saying that there is no uniform group of symptoms for any known serious illness—there are few pathognomonic symptoms. That makes a difference between doctors and mathematicians and blacksmiths.

The acutely traumatized abdomen is one of my greatest bogeys. I am excluding gunshot wounds. Here is a man who gives a history of a blow upon the abdomen. He is hurt sufficiently to call you in. You find some, often enough only meagre, suggestions of a ruptured gut; if you wait for confirmation you lose your man if the gut is ruptured; if you operate, you are sure now and again to open some who had no internal injury to warrant any such treatment, and invite a damage suit.

A case of this kind was a very fat man who got tangled up with a bull. He was trespassing on the bull's territory, as I learned. The bull got him down and butted his belly sharply. When the patient reached me, it looked as if the bull should have been injured instead of the man, the man was so big. We thought a laparotomy warranted, and proceeded, only to find the gut contused

and the peritoneum lacerated. There was no perforation.

Another man came to the hospital less than an hour after driving a Ford truck into a five ton truck. The steering wheel of his truck punched him in the belly. He claimed that he shortly afterward vomited considerable red blood. He was as rigid as possible over the whole abdomen, and yelled with pain, and complained of great tenderness. He and his brother were told the possibilities of operating and of waiting. They chose operation. No lesion was found, and as soon as he was dismissed he consulted a lawyer with a view to suing me for damages.

Another man was struck on the lower chest and the abdomen by a stick used in throwing a belt from a pulley. The chest was slightly abraded. He went home, and ate his supper which he vomited. This was on Friday afternoon. He came to me Saturday. His leucocyte count was slightly elevated, but it was thought no more than might be caused by the abrasion. Slight, if any rigidity. Moderate tenderness. No fever. No observable distension. Had been taking and retaining food. Bowels moved by enema. The following Monday there was slightly more distension. Bowels had not moved since Saturday. Enema did no good. I was ready to advise immediate operation; asked a couple of colleagues to see him. While they were in the room patient called for bedpan, had copious voluntary movement. The colleagues teased me over my alarm. I met with the Medical Society at Russellville the following Thursday. On my return found patient had gone to the bad, operated immediately, and lost him. He had a perforation large enough to admit a larger thumb than mine. It had been plugged by omentum temporarily. An early operation should have saved him. "You're damned if you do, you're damned if you don't."

The most violent pain in the abdomen occurs from perforation of the stomach and duodenum, in acute pancreatitis, and in ruptured ectopic sometimes. The former is severe, more severe than elsewhere, probably on account of the acid discharge. I do not know why ruptured ectopic should be so severe, or why it varies so much in its intensity. When pain exceeds a certain degree of intensity it makes me wonder if its cause is not high up. Moderate dosage of morphine usually controls pain from appendicitis; it frequently fails to control it in the upper abdominal group.

A Hint: I am in the habit of excluding peritonitis in cases that roll and toss with pain. In peritonitis the patients all lie still.

The pain that follows pathologic perfora-

tion is much more severe ordinarily than that of acute inflammation if we exclude acute pancreatitis. I am in the habit of removing the appendix through a McBurney incision when reasonably certain there is no other pathology, or when operating for acute appendicitis. But one gets an idea of about what degree of pain acute appendicitis will produce. It is ordinarily such as might reasonably be expected to respond to one-fourth grain of morphine. It does not produce shock or collapse and does not belong to the group of pains of the first order of intensity. Hence, if a case presents and is diagnosed as appendicitis, but the pain is more than one might reasonably expect, I make a midline or right rectus incision in preference to a McBurney. I stated above in this paragraph that ordinarily pain from perforation was more severe than that from inflammation. In processes like appendicitis where rupture follows the inflammatory process, cessation of pain instead of accession is to be expected, and, if it ceases too suddenly, leads the wise doctor to suspect either rupture or gangrene of the inflamed organ. A careful brief history holding the patient to strict answer of the questions asked may help us here. For instance, it makes a wide difference whether the patient gives you a history of repeated attacks, followed by soreness and then complete recovery except for indigestion, which may be negligible or may relate to only certain very restricted articles of diet; or, whether you learn that at a definite time after eating pain comes up, worse after some types of food, but always present, that this has been going on for a long time, maybe many years, that there have been intervals of comparative quiescence, that missing a meal or the long fast over night produces the pain, that a drink of water or milk or the ingestion of a small amount of some simple article of food, a biscuit or a cracker relieves it, that he has been a soda eater. In this latter case the patient has often become rather boastful of his "indigestion," even Pharasaical, and proud that he at last has found an ailment that has stumped the doctors. He knows it because he has consulted large numbers of them and has been told several different things, none of which he understood; but even at that he knows he has something to be proud of. We, too, know something about him; we know that when his ulcer perforates, it will be sudden, violent, resistant to narcotics, fatal, unless something is done at once. A word here may not be amiss, one of the "sat sapientibus est verbum" kind, if I may. Men sometimes play with appendicitis and get away with it; they play with the wind; but he who plays with a perforated ulcer plays

with the cyclone; and I am not always able to differentiate between them.

A good history is often worth more than a million dollar laboratory. Let me emphasize, not the tale, wandering, erratic, idle that the patient tells; but the story that can be wrought out by systematic interrogation.

We often let collateral symptoms and signs mislead us from the correct line of diagnosis. For instance, an edict once went forth from a very great surgeon that all cases of appendicitis have fever. "No fever, no appendicitis." That's what the edict said. But this is wrong, so wrong, so often wrong that it isn't ever funny. In going over my own records of appendicitis for the year 1923, we found that more than one-third of the proven acute cases who came to me had a temperature of 98.3-5 and less on admission. This after all errors in diagnosis were excluded. Again, somebody found out that inflammation produces leucocytosis. It actually does, but not always, and only too often misses right when you need it most. Now there are two things we do not know:

1—Why inflammation produces leucocytosis when it does, or why it doesn't when it doesn't?

2—Why a woman menstruates, and why she doesn't menstruate?

If I only knew these things I should be happy. At any rate the fact remains that we are not to be misled by a normal count, or what we deem too slight an increase or by leukopenia, any more than by a normal or subnormal temperature.

Let me tell you a tale. Sometimes these intra-abdominal lesions get all mixed and we untangle them only *ex post facto*. I was called to operate on a man about 60 years old, for appendicitis. He had it. The appendix ruptured during removal: upon examination it contained a gallstone unmistakably. He had a history of indigestion for 30 years. Had applied for life insurance four or five years before I saw him and was turned down on account of sugar in his urine. Then he applied for insurance every chance he got, just had to have it. Each time the same result. There is a lesson in the sequence. Cholecystitis, pancreatitis, diabetes, perforation of gall bladder forming fistula with gut, escape of stone which lodged in the appendix. Appendicitis rupture, death.

2. The second group is of as much importance to the physician as to the patient. I can scarcely imagine a more embarrassing situation than that of the surgeon who operates for an abdominal lesion, having given a more or less assured statement of the pathology expected, and, finding nothing, be compelled to tell the truth about it or to accept

the coward's alternative and lie about it, probably only to be caught in the lie by subsequent progress of the case. I know this thing must continue to happen until our methods of, and efforts at, diagnosis are more perfect than at present. Such cases are very persuasive lessons in caution to the unfortunate offender.

Everyone knows of the pneumonic patient who shows evidence of an acute abdomen, and also of the frequency with which early pneumonia shows insufficient evidence to justify its diagnosis. These two put together leave no excuse for failure to examine the chest in all acute abdominal cases. We would do well to establish as a maxim that the patient should be examined instead of the part of which he complains. It seems probable that the internists have learned this lesson better than the surgeons. In pneumonic cases the appendix is usually the object of misdirected operation, and a few suspicious points may, if heeded, raise a question that will help clear the diagnosis. A very high leucocyte count should help us to wonder whether appendicitis is the cause. I have seen a leucocytosis of 50,000 in appendicitis only once. It is nearly always under 30,000. Most often much under this figure. A high temperature is much more characteristic of pneumonia than of appendicitis. Increased respiration is also characteristic of the former. If all three symptoms are present and there are associated abdominal symptoms, the case should be considered a fine occasion for some very level-headed consultation with precaution against surgery. In such cases I consider the appendix innocent until proven pathologic.

A case coming to me since undertaking this paper illustrates a confusing differentiation which may prove hazardous if an error is made. A woman 31, three children, youngest 9, three miscarriages. Menstruated last on February 7, 1925. Missed next period. Six weeks from period began to menstruate, she thought, naturally. This continued one week; then she passed clots in abundance and was tamponed. Tampon replaced in 48 hours. Discharge was offensive. Second tampon removed in 24 hours. No more hemorrhage, but a lochial discharge continued. She did well till last Thursday afternoon. There had been no fever. On Thursday afternoon she ate a raw apple and in an hour or so was seized with a violent pain over the abdomen. This remained severe for four hours, settled in the region of McBurney's point and remained there. There was no nausea or vomiting. The physician found her with two degrees of fever Saturday night and 1 1-2 degrees Sunday morning. I saw her Sunday evening at eight o'clock. Temperature 100

3-5, W. B. C. 15,600, tender definitely at McBurney's point, Blumberg's sign present; no rigidity. The uterus was twice normal size, only a little patulous, boggy, movable, but not to a normal degree. She was tender in the vagina, but more tender on the abdomen, a point I was careful to determine while making a bimanual examination. I diagnosed acute appendicitis and advised immediate operation; my consultant diagnosed acute right nonspecific salpingitis and advised against operation. We operated and found a violently inflamed appendix, the uterus subinvolved, the tubes moderately congested and several lymph adhesions of intestines to the uterus and adnexa. The appendix was removed. It was not adherent. The other structures were not disturbed. Her temperature this (Monday) morning was normal.

It is hard, even for professional men, to avoid forgetting that chronic pain may be felt in the abdomen from causes entirely extra-abdominal. Two cases I once saw in the same week made a great impression on me. One was referred for cholecystitis. He was in bed when I first saw him and a lucky question or two soon revealed the trouble. Those questions may be worth repeating:

Q. "What is the matter with you?"

A. "Gall-bladder trouble."

Q. "When was your last attack?"

A. "It hurts all the time."

Q. "Is it hurting now?"

A. "No."

Q. "When did it hurt you last?"

A. "Just before I got into this bed."

Q. "Does it not hurt when you lie down?"

A. "No. Only when I sit or stand."

Q. "Turn over on your face." He had a tuberculous spine. Gall-bladders that hurt in the standing and sitting positions and are quiet when recumbent are not hurting at all.

The other of these two cases was similar, but had been diagnosed as several different abdominal lesions. His was recognized by his careful handling of himself and his stiff carriage, and his easing himself into his chair as he sat down. Another case of tuberculosis of the spine.

A most able surgeon friend was once about to do a laparotomy. My impression is that it was exploratory. The room was set up, the patient on the table, the anesthetic ready to begin. The surgeon got "cold feet." While he was delaying things with his deliberations, an angel walked into the room in the form of a neurologist, who was invited to examine the case and found the pain due to tabes dorsalis. He saved the chagrin of an unnecessary operation before a clinic. He should really have been invited deliberately sooner. But

this seems awfully hard to do sometimes.

Enterospasm, I believe, gets operated on more frequently than any other non-surgical intra-abdominal condition, and I am persuaded that very frequently when the abdomen is opened the true condition is not recognized, and this is probably because the condition is not by any means universally known to exist.

Enterospasm when misdiagnosed, as it very frequently is, is usually diagnosed as acute appendicitis, acute perforative peritonitis, or intestinal obstruction. I know, for I am guilty on all three charges.

The first case of this kind I saw was about 1909. A young man came into the office and was examined by my brother. He was suffering violently with a general abdominal pain. One-fourth grain of morphine was given hypodermically with practically no effect. Consultation was called and the three of us agreed that he had an acute perforation, probably appendix or gastric ulcer, and that he should be operated at once. This was done. No pathology was found to explain his distress. There was a small accumulation of serum behind the peritoneum in the upper abdomen, and the upper jejunum was small, contracted, flat, bluish and felt as if it contained well cooked very soft, gains of rice.

Another case was a man about sixty, who consulted me about recurrent attacks of pain, the details of which impressed upon me that he probably had chronic intestinal obstruction. So I advised him and told him if he got a severe attack and vomited or failed to get his bowels to move he should report back promptly. In the course of time he did so. He was sent to the hospital in the morning suffering considerably. He had no distensions. Was scaphoid on the contrary. About 2 P. M. the same day I was notified that he had been vomiting considerably, and that the vomitus had become stereoraceous. I went to the hospital, confirmed the statement and did a laparotomy immediately. He was a tall man, with large frame, but was thin. On entering the abdomen his whole intestine was contracted down to the size of a little finger, but more flattened. He was nearly empty, it was so small. I had seen enough cases to recognize the condition and had learned that lifting the intestines outside relaxed the contracted walls. This was done here. His appendix was removed, but not diseased. Everybody knows of cases operated for obstruction when no obstruction can be found. Personally, I feel that the majority of them are explainable on this basis. A friend of mine within the week had a case of the kind. Occasionally I have been able to recognize the condition clinically. This is true of the last two cases. Intestinal obstruction of several hours dur-

ation and with no distension should cause us to think of enterospasm. I do not mean to convey the impression that obstruction must show distension or that enterospasm cannot cause it.

The last two cases are very important.

One was a little girl of 10 years. She gave a history of several attacks, which had lasted several days without diagnosis. This time she had been ill seven days when I saw her. No fever. Pulse about normal, vomiting everything, liquid or solid, very dry, had lost much weight, scaphoid, suffering. Otherwise abdomen was negative. A dose of atropine 1-150 gr. relieved her in thirty minutes of both pain and vomiting. She was then able to eat and drink without disturbance.

The other was a boy of 12. He had had a normal appendix removed in a previous similar attack. Had several attacks subsequent to the operation. But the last one would not yield and they contemplated the necessity of opening the abdomen again. A dose of atropine relieved him also.

The pathologic abdomen which produces no pain is not properly included in the subject of this paper but I cannot feel that my duty is completed without reference to it; the people are hard to convince, the doctor prone to forget, that just as serious damage may be done by painless as by painful lesions. We miss the dramatic effect of the pain, miss its influence in directing us to the real cause or away from it, but must not forget to search untiringly, and often interpret rather boldly if we would do justice to the patient who is dying for want of a pain.

Postoperative Biliary Fistulas.—In the series of operations in 166 cases of biliary fistulas reported on by Balfour and Ross there were sixteen deaths, a mortality of 10 per cent. In operations undertaken for various conditions which were responsible for fistulas, the percentage of deaths shows very clearly the relative risks which accompany these operations. For instance, in thirty-five cases of stone in the cystic duct, no operative mortality occurred, while in the groups "division of the common duct" and "stricture of the common or hepatic ducts," six deaths in twenty-one cases were due largely to chronic jaundice and sequels so common in such cases.

THE SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

By IRVIN ABELL, Louisville.

The successful treatment of peptic ulcer of necessity implies the joint employment of both medical and surgical measures since the lesion, in the absence of accurate knowledge of the true, underlying causative factors, must be dealt with according to the clinical and pathological features which present. Some are best treated by medical measures, some by surgical operation, and since most cases present a combination of both features, the best results are to be obtained by the joint efforts of surgeon and internist. The cases in which all agree upon the employment of surgery are those presenting perforations, bleeding, chronicity and obstruction. In the many types of operations that have been devised and employed the underlying considerations have been to afford a restoration of physiological function, free drainage of the stomach and a partial neutralization of stomach acids by intestinal alkalis. The occurrence of perforation, bleeding and malignant degeneration in ulcers left behind has led to the conviction of the desirability of destroying or removing the ulcer or ulcers in addition to meeting these indications.

On the assumption that the cause of peptic ulcer is to be found in an underlying defect in the acid bearing portion of the stomach, Finsterer has advocated its total ablation for the cure of those at and near the pylorus, regardless of whether duodenal or gastric, an operation which in the light of experience is admittedly curative but the magnitude and extent of which seems almost prohibitive for routine use when compared with the favorable results obtained by simpler and less dangerous procedures. Regardless of the type of operation we elect to employ primary mortality and end results must be the chief considerations. Unfortunately, no one method can be employed in all cases, nor can we from an analysis of symptoms, laboratory tests and X-ray findings tell the type of operation best suited to the individual case before ocular inspection reveals the local pathology: perforation into the free cavity or into adjacent viscera, fixation or mobility of pylorus and duodenum, the presence of inflammatory exudate, obstruction due to cicatricial contraction, exudate or massive adhesions, location and number of ulcers, in varying combinations present problems that are most satisfactorily solved by the selection of that operation best suited to the given

case. Inconsidering the various types of operations the writer will take the liberty of limiting his discussion to those with which he has had personal experience.

PERFORATIONS: Immediate closure of the perforation is the essential indication. Approximately 80 per cent of the acute perforations of duodenal ulcers occur on the anterior wall and 90 per cent of the acute perforations of the stomach occur on the lesser curvature of the prepyloric portion of the stomach; the perforation on the posterior walls at these locations is frequently sealed by adhesion of adjacent structures, notably the pancreas. Closure of the opening with superimposed layers of Lembert sutures and an omental fat graft suffices not only to control leakage but in the vast majority of instances to secure healing of the ulcer. The employment of additional measures such as excision or cauterization of the ulcer, pyloroplasty and gastro-enterostomy will depend on the extent and character of the local lesion and the general condition of the patient. The prime consideration in such catastrophes is the saving of life; this is accomplished by the stoppage of the leak. It may be stated, as a general rule, that the greatest safety to the greatest number prohibits doing more and yet in the presence of marked obstruction, granting that the condition of the patient permits, a pyloroplasty or gastro-enterostomy may be done with reasonable safety and thus insure an ultimate and permanent relief which would otherwise necessitate a second operation. The earlier the recognition of the perforation, the earlier its closure, the greater the percentage of recoveries and the greater the opportunity of doing additional corrective work if indicated. Perforations in which more or less successful efforts at closure have been made by nature will present in three clinical groups: one, rather extensive epigastric peritonitis with or without subhepatic or subphrenic abscess; two, localized peritonitis with recent inflammatory exudate matting together structures adjacent to the perforation; and three, the so-called chronic perforations, in which the inflammatory phenomena have largely disappeared and the perforations remain sealed by close adherence of adjacent tissues. In the first two groups the perforation itself, surrounded and sealed by acutely inflamed tissues, will neither demand attention nor permit of surgical attack, the operative treatment consisting, in the first group of drainage of purulent deposits, and in the second of gastro-enterostomy. In the third group the location of the ulcer and the character of the structure to which it is adhered will determine the nature and extent of operation.

*Read before the Third District Medical Society at Bowling Green.

DUODENAL ULCERS: The four methods which have been employed by the writer in the treatment of duodenal ulcer are gastro-enterostomy alone, excision of ulcer alone, excision of ulcer or cauterization of ulcer combined with gastro-enterostomy and pyloroplasty. The result of this experience has been the definite conclusion that pyloroplasty is excellent in a limited number of cases while gastro-enterostomy, with or without destruction of ulcer as conditions permit, has decidedly the wider field of usefulness. When the ulcer is small and situated on the anterior wall immediately distal to the pyloric vein producing distortion of pylorus, granting that the pylorus can be readily mobilized, pyloroplasty after the methods of Finney and Horsley gives splendid results. When the ulcer is single and situated on the anterior wall distant to the pylorus, destruction with the cautery after the method of Balfour combined with gastro-enterostomy gives satisfactory results in over 90 per cent of cases. The cautery method of Balfour is preferred to excision in that the bleeding and operative trauma are decidedly less and the destruction of ulcer just as certain. When the ulcers are multiple, and they are in from 5 to 6 per cent of cases, when situated on the posterior wall, where they are difficult of access; when fixation of the pylorus and duodenum exists as a result of adhesions of chronic perforation, and finally in the presence of definite obstruction, gastro-enterostomy alone with appropriate postoperative medical supervision can be relied on to afford relief in approximately 90 per cent of cases. The destruction of duodenal ulcers is not an imperative indication, but when local conditions makes this a feasible and reasonably safe procedure it is advisable in that it at once gets rid of the ulcer, avoiding dependence on a slow healing process and obviating the possibility of subsequent bleeding. Balfour's paper in the August 1924 *Journal A. M. A.*, giving the end results in one thousand gastro-enterostomies done for duodenal ulcer ten years or more before shows such excellent results, 88 per cent having been cured, that the burden of proof is placed upon the advocates of other methods to show just cause for such advocacy. In the light of such experience and the knowledge that duodenal ulcers show little or no tendency to undergo malignant transformation it will be a difficult matter to convince one of the wisdom or expediency of adopting more radical resections, such for instance as that advocated by Finsterer. In those cases in which there is a history of long duration and in which at operation marked changes are found in the duodenum with a resultant high grade obstruction the operation of gastroenterostomy gives striking-

ly benevolent relief. The unsatisfactory results, at least in my experience, have been in those patients lacking in long chronicity and presenting a small ulcer with no widespread changes in the duodenal wall and no obstruction. The failure in some such cases is to be found in faulty operative technique in making the gastro-enterostomy; in others to leaving behind an infected gall-bladder or appendix; in others to activation of the unremoved ulcer; in others to overlook distant foci of infection; in others to the resumption of a faulty diet, in addition to which it must be borne in mind that in the vast majority of patients presenting gastric symptoms, these latter are due to causes extrinsic to the gastric tract: granting the coincidental occurrence of peptic ulcer in such a patient, its operative correction is doomed to complete or partial failure in so far as securing complete freedom from symptoms is concerned.

GASTRIC ULCER: The well known tendency of gastric ulcers to become malignant renders imperative their destruction in the course of operative measures undertaken for their relief. I have met with the common experience of treating such lesions with a gastro-enterostomy and having the patients return years later with an advanced carcinoma. The operative measures with which I have had experience are gastro-enterostomy alone: (from what has just been said and what follows it will be seen that now this operation is always supplementary to destruction or removal of ulcer.); excision of ulcer: Balfour cauterization combined with gastro-enterostomy: sleeve resection of pars media and resection of pylorus or partial gastrectomy, Billroth and Polya types. Ninety per cent of gastric ulcers occur on the lesser curvature and posterior wall. Balfour has drawn attention to the advantage of the cautery combined with gastro-enterostomy in treating ulcers, the craters of which are 1 c.m., or less in diameter, since these are rarely malignant. When the craters are between 1 and 2 c.m., in diameter malignancy is to be suspected, consequently if at or near the pylorus a partial gastrectomy should be done; if distant from the pylorus a thorough cauterization, or excision with gastro-enterostomy. When the craters are more than 2 c.m., in diameter, as shown by MacCarty, the ulcers should be regarded as potentially malignant and treated by partial gastrectomy if in the pyloric end of stomach, by thorough cauterization or sleeve resection if in the pars media and by cautery excision and gastro-enterostomy if high up on the lesser curvature. Ulcers of any size in locations of difficult accessibility lend themselves more readily to cauterization than to excision or resec-

tion. Ulcers of lesser curvature showing marked inflammatory deposit, the so-called callous or saddle ulcer, should be removed either by pylorotomy or sleeve resection: the defect left by excision or cauterization is such as to render accurate suturing difficult and to product marked distortion and deformity. Ulcers of the posterior wall adhered to or perforated into pancreas should be treated by separating the stomach from the pancreas, cauterization of the ulcer margin or edges followed by a gastro-enterostomy. Patients showing active hemorrhage should be prepared for operation by transfusion and such ulcers, whether gastric or duodenal, should be excised or cauterized since when left behind they not infrequently show further bleeding.

Peptic ulcers may recur after any type of operation, being located at former suture line, in new locations in the stomach and duodenum and in the jejunum at or below the site of anastomosis with stomach. Fortunately, this occurs in but a small percentage of cases, the cause for their formation being as elusive as that for their primary appearance. Finally, in all cases of peptic ulcer, foci of infection, both abdominal and distant, are to be sought and eliminated when found; and following operation, appropriate medical supervision should be instituted for at least six months, preferably one year.

Early Diagnosis of Syphilitic Chancre.—Hudelo emphasizes the importance of early recognition of syphilis for the abortive treatment. In every case of soft chancre one should suspect syphilis. The serum reaction is necessarily negative in the stage (except for some possibilities with the use of serum from the lesion), but the presence of spirochetes is decisive, and should be looked for every day or two; by 0.5 to 2 mm. deep scarifications, followed by expression of the serum. The border between the lesion and the healthy skin may be crowded with spirochetes. The diagnosis before the tenth day of the disease should be the rule, not the rare exception.

Viability of *Spirochaeta Pallida*.—From the experiments made by Laey and Haythorn it is evident that spirochetes kept in serum or moist tissue, either human or animal, may retain slight motility as long as three months or more. Complete drying is probably fatal to the *Spirochaeta pallida*, since each of our rabbits inoculated with dried spirochets on scalpels, failed to develop syphilitic lesions. *Spirochaeta pallida* may, and in one case did, remain virulent in necropsy material for twenty-six hours or longer.

FOCAL INFECTION.*

By H. C. CLARK, Falmouth.

We probably could not have selected a subject which has called forth more controversy in the last few years than the one we are attempting to speak of now. Its hidden mysteries, the effect that it has had on the economy, light has begun to break through. There have advances been made in the last few months, clearing away some of the misunderstandings and we have reached a point where we can discern a portion of what is responsible for extended or secondary infection. If we are successful in bringing up a discussion of this subject if it will help clear the rubbish away and give us a better understanding, we will be more than satisfied with our effort.

We can hear on every hand that the pendulum is swinging too far to the other extreme, that the focal infection is only a dream and used as a blanket to cover up loose thinking, and poorly formed opinions. We have had some personal experience with focal infections and we know that it can be carried from decayed teeth, diseased tonsils into the sinuses hidden away out of sight, far removed from points that are accessible where difficulty of drainage is met with. We have seen so-called trifacial neuralgia disappear as if by magic after the tonsils and bad teeth have been removed. Nature is a wonderful doctor, often walling off secretions, which, if left alone, would soon work havoc to the patient.

We have seen so-called muscular rheumatism soon disappear after adenoids were removed. How often have you seen neuritis fade away after diseased tonsils were removed! Have you seen constitutional symptoms follow focal infection where there was a rapid loss of flesh, a daily temperature, an irregular heart action, pericarditis and myocarditis, where the focus of infection was opened up, dead tissue removed, free drainage established, the patient gradually returned to health.

Of course, it will be understood where there are signs of infection or absorption in the system of poisonous elements, the point of infection will have to be discovered early to head off absorption and a general infection of the system. We do not indorse the belief that the diagnosis is a blanket to cover up the sins of loose thinking, downright laziness or indifference towards forming a reasonable and honest opinion. Have you seen a patient under weight, pale, nervous, fast pulse, poor appetite, feeble digestion, who was suffering from periostitis? After the dead bone was removed, they soon began to improve, build up rapidly, take on flesh and strength. I would

*Read before the Pendleton County Medical Society.

like to ask the question if this diseased bone was responsible for the general constitutional condition? If there was not a secondary condition set up, and blood taints or blood changes affecting metabolism? What was taking place in the bone surrounding tissues, was the local infection responsible for pulling him down? Was this responsible for developing acute nephritis there are many things that we cannot understand about the transmissions of poisonous material in the blood stream carried by infection whether the point of infection has been found or not. What we do believe is there are more or less hidden responsibilities, the gall bladder, sinuses, tubes and glands which are carried to more parts of the system where secondary infection is set up. resisting power has been reduced by the primary infection and a general septic condition follows. You constantly hear how common it is for physicians to associate with every ailment that humanity is heir to, to the teeth, tonsils, thyroid, adenoids, and every other gland in the system. We would not say that focal infection is responsible for all the sins laid at its door, but we do know there is often an intimate connection between focal and secondary diseases.

Once more, we have been called to see patients who had performed hard labor up to forty-eight hours before you were called and found them with a belly full of pus and dying from peritonitis caused by an infected appendix. Nature had failed to wall off the pus as so frequently happens and the patient of course is then suffering, not from a complication altogether, but from a new disease.

Another evidence of infection: we refer to puerperal eclampsia. We are satisfied that the cause of the explosion in eclampsia was caused by toxemia and this convulsion took our minds away instantly for the consideration of a more important matter after the storm broke.

Did toxemia cause the nephritis or nephritis produce eclampsia? Or was there focal infection somewhere that was guilty?

We believe toxemia had its beginning in focal infection somewhere in the system. If a focus of infection is not always in view it does not mean its non-existent.

THE REDUCTION AND DESTRUCTION OF TONSILS BY ELECTRO-COAGULATION.*

By B. C. ROSE, Bryantsville.

To one who has witnessed a tonsilectomy by surgical means either under local or general anesthetic would do well to investigate the electro-coagulation method of treatment. There is growing reluctance toward surgical removal because surgical tonsilectomy done under general or local anesthetic is near a major procedure and a major risk.

It is difficult and almost impossible to remove or even reduce tonsils by the electrical method in children under twelve years of age. They are too young to understand what we are about and consequently will not hold the mouth open nor the tongue down and can not be kept under sufficient control during the operation.

The best subjects as stated are above twelve years of age. A local or general anesthetic is not necessary. Begin with 500 milliamperes of D'Arsonval current, apply the jump spark holding the needle at close distance to the tonsil, produce a pin point blanch and do not leave the point of coagulation but work away in every direction from that point. The gradual coagulation produces anesthesia. If the tonsil is hard and fibrous then step up the current to around a thousand milliamperes if necessary.

It makes no difference what type of tonsil we are dealing with in applying electro-coagulation—whether simple hypertrophy, the repeatedly infected inflamed tonsil, those badly diseased and abscessed, the malignant sarcomatous or carcinomatous type, or whether the same. There is no loss of blood, no need same. There is no loss of blood, no need of haemastatics, no spread of infection for the simple reason the tonsil is blanched, cooked and charred if you like. The temperature is brought up to 212 degrees F. and higher.

Hospitalization of the patient is not necessary and there is no preparation of the throat such as sterilization needed. The electric current destroys the bacteria in the tonsil tissue and penetrates the crypts and follicles better than any antiseptic known to medical science.

I repeat—it is a bloodless operation—can be done in the office and without an anesthetic if but little patience is acquired by both patient and operator. But if deemed necessary, we would recommend any good reputable local anesthetic which has little toxic effect, such as a ready prepared solution of "N. S." solution "E" 2 per cent made by H. A. Metz Lab-

*Read before the Garrard County Medical Society.

oratories or 2 per cent Solution of Butyn. The anesthetic should be injected into the tonsil and peritonsillar tissues.

The small machines should be satisfactory but my preference has been a Big Fisher High Frequency. The only articles needed other than the machine is a good pair of conducting cords that will not leak current through the insulation to the patient, a foot switch, a long cable capable of reaching the patient with ease that will carry the needle, a wooden tongue depressor made into the shape of a metal one.

If the tonsil is found located beneath the anterior pillar, a kind of hook retractor will be necessary for the assistant to hold the anterior pillar out of line and out of the way of the surgeon. The needle should be insulated to within a 1-4 of an inch of the point.

My own technique or method is as follows: First gain the confidence of the patient by assuring him that there will be no pain other than a hot sensation after the first few applications of the jump spark. The patient is seated in front of the operator and near the machine, which is set on the D'Arsonval current to deliver 500 milliamperes; the patient holds an auto-condensation handle attached to one pole of the machine; the surgeon holds the needle handle which is connected to the other pole of the machine. Now, with a good wooden tongue depressor as described, a strong head light or mirror, the operation is begun. Bring the needle in close up contact with the tonsil and step on the foot switch. A slight blanch pin point size will be observed on the tonsil at the same time the patient will pull away from the operator. A second or more the tongue depressor is applied and the operation is repeated and so on until complete coagulation is brought about. The hard fibrous tonsil can be completely charred by the jump spark method in the hands of the careful operator without endangering the peritonsillar tissue or patient in the least. When the operation is completed the patient is told to go about his affairs and to fear no complications other than a slightly sore throat for a few days. More than one application may be necessary depending altogether on the amount of coagulation done and the condition of the tonsils previous to the operation. If the tonsil is soft and friable one application may suffice, if large, hard, and fibrous, then more than one application may be necessary. Ten to thirty days should elapse between treatments, each time waiting the required number of days for the tonsil tissue to come away.

The actual working time is but a few minutes in most cases while in others much time may be required.

BOOK REVIEW

DEVELOPMENTAL ANATOMY. A Text-Book and Laboratory Manual of Embryology. By Leslie B. Arey, Prof., of Anatomy at the Northwestern University Medical School, Chicago. Octavo volume of 433 pages, with 419 illustrations, many in color. Philadelphia and London W. B. Saunders Company. 1924. Cloth, \$5.50 net.

This book has been prepared for the use of medical students and others whose interests center primarily on man and mammals. The emphasizing of structural rather than functional aspects of Embryology is reflected in the title; such presentation is consistent both with the practical demands of modern courses and with the meagre information existant as to the physiological factors in development.

The volume contains three sections. In the first part the early stages are treated comparatively and the full course of prenatal and postnatal development is outlined. The second section traces the origin and differentiation of the human organ-systems, grouped according to their germ-layer derivations. The third division comprises a laboratory manual for the study of chick and pig embryos.

Many illustrations are from the earlier Prentiss-Arey text and discontinuous fragments of description have likewise been retained. Yet, in plan and content the work is essentially new. It is hoped that the developmental story has been told in an orderly and clear, but concise fashion, and that it records accurately the present state of the subject.

ORGANOTHERAPY IN GENERAL PRACTICE.

"Organotherapy in General Practice," is offered to the medical profession in the hope that it will prove of real service in supplying a condensed, dependable text-book covering the entire field, and be of value to the general practitioner in the diagnosis and treatment of those conditions in which Organotherapy is now the accepted method of treatment.

G. W. Carmack Co., 417 Canal St., New York Publishers. Price \$2.00.

GOITER, NONSURGICAL TYPES AND TREATMENT, by Israel Bram, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, Pa.

One of the most vital medical subjects of today is extensively presented in this monograph from a clinical and practical medical standpoint. The work contains the nonoperative methods of treatment together with all the accepted theories regarding the disease on which the author is a well-known authority.

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NEXT ANNUAL MEETING—OWENSBORO, 1925

COUNTY SOCIETY REPORTS

Carlisle: Carlisle Medical Society met in Milburn at H. A. Gilliam's office, on Tuesday, June 2, 1925, with D. S. Robertson, president, presiding.

The following members were present: T. J. Marshall, G. W. Payne, H. T. Crouch, and W. L. Mosby, of Bardwell; W. Z. Jackson, R. T. Hoeker, J. F. Dunn, of Arlington; D. S. Roberson, R. C. Burrow, of Cunningham; and H. A. Gilliam, of Milburn. Every doctor in the county was present, all being members of our society.

After prayer by Dr. R. T. Hoeker, the minutes were read and approved.

The following program was rendered:

The Abnormal Menopause, by T. J. Marshall.

Acute Glaucoma, by J. F. Dunn.

Chorea, by W. Z. Jackson.

Malaria, by R. C. Burrow.

These were all fine papers and a general discussion followed.

Motion to appoint a committee on arrangements to entertain the semi-annual meeting of the South West Kentucky Medical Association, to be held in October as follows: D. S. Robertson, G. W. Payne, W. Z. Jackson, T. J. Marshall, J. F. Dunn, and W. L. Mosby.

The society extended a vote of thanks to Dr. and Mrs. Gilliam for the most excellent dinner spread, and also to Mr. Stone, the druggist, for the cigars, and Mr. Harry Greene for the cold drinks.

The next meeting will be held at Cunningham with R. C. Burrow, on August 25.

There being no further business the Society adjourned.

J. F. DUNN,
Secretary.

Jefferson: The regular 552nd stated meeting of the Jefferson County Medical Society was held in the City Hospital, June 1. This meeting was in honor of the Alumni of the University of Louisville. The following program was carried out:

Diabetes Mellitus A Symposium

Endocrinological Causes and Effects, by W. O. Humphrey.

Blood Chemistry and Metablism, by John Walker Moore.

Pregnancy and Childhood, by Alice Pickett.

Surgery, by Geo. A. Hendon.

Insulin Treatment, by Virgil Simpson.

General Treatment, Diet and Joslin Card, by Wm. A. Jenkins.

Discussion to be opened by Drs. R. Hays Davis, Leo Bloch and Rowan Morrison followed by Volunteer Alumni Reminiscences.

ORVILLE MILLER,
Secretary.

Perry: The Perry County Medical Society met at Hotel Combs Monday, June 8, at 8 P. M. The following program was carried out:

Z. M. Abshear read a paper on "Infant Feeding."

Mrs. J. A. Neblett gave a toast entitled, "The Doctor's Wife."

W. E. Ray, of Harveton, responded with a toast, "To The Ladies."

There being no further business the society adjourned.

J. P. BOGGS,
Secretary.

Henderson: Henderson County Medical Society met at Hotel Soaper April 13, 1925, for dinner and scientific session at 6:30 P. M. After dinner those present retired to a private room in the hotel, where president R. E. Smith called the meeting to order. There were present: Drs. Strother, Neel, Smith, White, Griffin, Letcher, and Ligon. Minutes of March meeting were read and approved as read. Dr. Wm. V. Neel read a paper with title, "The Treatment of Collapse in Infancy And Childhood." The paper was freely discussed by those present. A motion was made and carried, requesting Dr. Neel to present the paper to the Kentucky State Medical Journal for publication. There being no further business the Society adjourned.

PEYTON LIGON,
Secretary.

Henderson: Henderson County Medical Society met at the Soaper Hotel March 16, 1925, in regular session at 6:30 P. M. After dinner had been served the members present retired to a private room for the scientific session. There were present Drs. Smith, Letcher, Powell, Neel, White, Ligon, and visiting dentists Redman, Markwell, and Henneidy. Meeting called to order by president R. R. Smith. Minutes of previous meeting were approved as read. Dr. Redman read an interesting and instructive paper upon the subject of "Month Hygiene." The paper was freely discussed and highly complimented by those present. Dr. R. E. Smith reported several interesting cases. There being no further business the Society adjourned.

PEYTON LIGON,
Secretary.

Franklin: At the regular monthly meeting of the Franklin County Medical Society, held at Capital Hotel, May 7 at noon, there was present R. B. Ginn, president, A. M. Jackson, C. E. Youmans, John Patterson, G. A. Budd, J. P. Stewart, J. W. Wilson, L. T. Minish, J. S. Coleman, G. H. Heilman, F. W. Mastin.

The Society was honored by having as their guest, their Councilor, W. E. Gardner and Dr. A. C. Kolb.

Reading of minutes dispensed with and the

report of treasurer was accepted.

A letter from "Birth Control League," asking that one of their lecturers be allowed to come before the society sometime in July, to explain their work, was read. After discussion it was the wish of the society to invite their representative to meet with them and the secretary was instructed to write them to that effect.

Announcement was made of a "Clinic for Crippled Children" to be held at Harrodsburg, May 26-27.

J. W. Stewart and L. T. Minish, representing the Rotary Club in this work, urged all members of the society to see parents of afflicted children and get their consent to take them to the clinic. Arrangements will be made to take all such children and their parents.

W. E. Gardner told of work along this line that is being done in other places and made some helpful suggestions as to the best way of carrying out the work here.

The society extended a cordial invitation to Dr. Gardner to make them another visit soon.

Dinner followed business meeting.

Adjourned.

F. W. MASTIN,
Secretary.

Franklin: The Franklin County Medical Society met in regular monthly session at the Capital Hotel, Thursday, June 5, at noon with the following present: R. P. Ginn, president, Jackson, Minish, Youmans, Budd, Stewart, Patterson Garrett, Coleman, Mastin.

Minutes previous meeting read and approved and the report of treasurer accepted.

Dr. Minish, chairman of Committee from Rotary Club for Crippled Children, reported 9 white children were taken to Harrodsburg to Clinic. Several could be benefitted by operation and parents agreed to have the work done. The colored children were under the care of Dr. Underwood. Five were taken to clinic. A report will be had from Dr. Underwood at next meeting.

Letter from Birth Control League announced that their representative will be here sometime in July to talk before the society and it was agreed to postpone July meeting until such time as suits the lecturer.

Dr. Garrett announced that he was prepared to do laboratory work. This will be a great accommodation to the physicians of Frankfort.

A social hour with dinner followed.

Adjournment.

F. W. MASTIN,
Secretary.

The fifth annual class in Laboratory Technic, given by the State Board of Health, will begin September 14. As the class is limited applicants should make reservations immediately by applying to Dr. L. H. South, 532 W. Main St., Louisville, Ky.



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Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in $\frac{1}{2}$ cup cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method, but in the proportion of one-half teaspoonful of gelatine to a glass of milk.

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The New DaCosta's Surgery

The new edition of *DaCosta's Modern Surgery* had to be entirely reset. There was so much new matter to be added that it was necessary to make the page slightly wider and longer.

Among the many important additions are: Buerger's disease and rewriting of the subjects of tuberculosis, shock, syphilis, blood transfusion, fractures and dislocations, surgery of the respiratory organs, hernia. Coffey's operations for cancer of the rectum, anesthesia, goiter, and X-ray therapy. There is also a new chapter on electrothermic methods in neoplasms as well as a new section on radium.

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXIII.

BOWLING GREEN, KY., AUGUST, 1925

No. 8

THE PROGRAM

This issue of the Journal contains the preliminary program of the Owensboro meeting. The Committee has given unsparingly of their time and labor in selecting subjects and speakers so that the program will be interesting to the specialists and instructive and attractive to the general practitioner.

We are exceedingly fortunate in having a former Kentuckian and Past President of the American Medical Association, Dr. W. A. Pusey, of Chicago, to deliver the annual oration.

It will be of interest to Kentuckians to know that Dr. Pusey has never ceased to love his native state. He has given to the City of Elizabethtown the old Pusey mansion for a Community Center. The Muldraugh Hill and Hardin County Medical Society hold their meetings in this stately old building, now remodeled and beautifully furnished. Dr. Pusey's book on *The Wilderness Trail* forms part of the archives of the Filson Club, and he has placed markers all along the romantic highway. This interesting book is now in the library of the Association.

The new hotel in Owensboro has been completed, and those, who enjoyed the luxuriant comforts of the Brown at our last meeting, will have a replica in the new caravanserai at Owensboro. Pleasure, recreation and instruction can all be combined at our annual meeting.

Owensboro and Daviess County will have many attractive features to elicit the attention of the visiting physicians, but especially do we want to commend the Full-Time Health Department to their serious consideration, and urge as many as possible to visit the headquarters of this outstanding health unit, which is located just across the street from the New Owensboro Hotel. Dr. Hathaway, the Director, will welcome all visitors and explain the county-wide program in detail, and it goes without saying that a study of the intensive methods of public health work in this county will prove an inspiration to those who will take time for it. The entire profession of Daviess County has backed this health demonstration and helped to make possible

its success. Too much praise cannot be accorded the physicians of the county. In keeping with the spirit of progress in health work throughout the country, Daviess County has gone forward with splendid leadership, and has constantly demonstrated the value of the county as a unit. In relationship with both the profession and the public, high standards have been constantly maintained, to the end that a marked degree of confidence in the future outlook for even better progress is evidenced. It would be worth while indeed if every physician visiting Owensboro would carry home with him a confident hope that his own county might launch a similar movement for health betterment.

A SERUM ENCEPHALITIS

With her usual interest in securing for the medical profession of the state, the most recent aids in diagnosis and treatment, Dr. South has secured from our friend, Dr. E. C. Rosenow, the distinguished serologist of the Mayo Foundation, a quantity of the immune horse serum for the treatment of encephalitis.

The serum has been prepared with immunologically identical strains isolated from various forms of acute and chronic cases of this disease. It has been proved to be non-toxic, to contain antibodies, and to have protective powers in animals against homologous strains.

As indicated in the report published in the Journal of the American Medical Association, 1922, IXXIX, 2068-2071 the best results are to be expected when the serum is given in the early stages of the disease. However, it may be worthy of trial in certain cases of long standing; the causative organism has been isolated, and experimental studies indicate that it is operative long after the onset of the disease. But curative effects of the serum should not be expected in all cases, for while the strains are usually immunologically identical, they are not always so, and anatomic changes may have become such as to make curative effects impossible.

Before giving the serum the usual precautions regarding hypersensitiveness to horse serum should be taken. The warmed serum should be given intravenously, at a slow rate, or intramuscularly. The initial dose for

adults should not exceed 10 c.c. Subsequent injections, to be given daily, may be from 20 to 40 c.c., according to circumstances and results obtained.

From results it is becoming apparent that here is need for prolonged use of the serum in chronic cases. If the first week of treatment has a beneficial effect, omit the injections for a day or two during the time of the serum sickness and, as the patient is recovering from this, begin giving slowly very small doses, from 3 to 5 c.c., intravenously. If no upward symptoms develop, the amount may be increased gradually to the former dosage. Injections can then be continued indefinitely with no apparent danger of anaphylaxis.

Dr. South asks that physicians requesting and using this serum keep careful record of the case which can be transmitted to the Mayo Foundation.

DALLAS WILL ENTERTAIN THE SOUTHERN MEDICAL ASSOCIATION IN NOVEMBER

A warm invitation is being extended to the doctors of the South to attend the annual meeting this fall, and preparations are being made to entertain between four and five thousand. Already, 1500 rooms in the best hotels have been set aside for this purpose, and it is estimated that more will be available.

Dallas has all the chief requirements for a successful convention city; ample hotels and auditoriums, easy accessibility, facilities for entertainment and diversion, coupled with whole-hearted hospitality on the part of the citizenship. It is not only a medical center of importance, but a city of interest and opportunity.

Ten trunk line steam railroads serve Dallas with 100 passenger trains daily in and out of the \$6,500,000 Union Terminal Station. 258 interurban trains leave the \$1,000,000 electric interurban station daily. Dallas is 16 hours by rail from Kansas City, 18 hours from St. Louis, 27 hour from Chicago or Cincinnati, and 43 hours to New York.

For those who wish to use the automobile in attending the S. M. A. convention, Dallas is located on five transcontinental highways, Bankhead, Meridian, King of Trails, Dallas-Canadian-Denver, and the Dixie Overland. These highway organizations assure the tourist of well kept roads. In Dallas alone are 1000 miles of surfaced highways, and a tourist camp and centers of highway information are available also.

Dallas has a number of strong clubs, splendidly housed, such as Dallas Athletic Club, University Club, a number of fine golf clubs, and all the leading national service organiza-

tions, such as Rotary, Lions, Kiwanis are represented here—all are most hospitable in the entertainment of visitors.

Restaurants, either connected with hotels or independent, are numerous and of a generally high standard. Some of the highest priced chefs in the nation are here. You can get meals with a Western flavor, Mexican dishes, Chinese dishes or old fashioned Southern cooking. All the year truck gardens and farms are producing in some parts of Texas, and this coupled with proximity to packing houses, poultry farms and orchards, tends to keep food prices reasonable.

Dallas has 37 theatres, with a combined seating capacity of 28,000. These include summer and winter stock companies, many good road shows during the season, high class vaudeville and motion picture houses, and the Little Theatre which was twice awarded the Belasco Prize. There are theatres costing as much as \$2,000,000 and seating as many as 3,000 persons.

Dallas' climate as a whole is pleasant and invigorating, without severe extremes, and November in Texas as a rule is crisp and clear, ideal for travel and for out door sports.

Through the medium of this Journal, in later issues, data on the Hospital and clinical facilities of the Convention City will be given, meanwhile, the medical profession of Dallas and of Texas invites you to plan to attend the Southern Medical Association Convention this fall.

THE LABORATORY IN MEDICINE

Many who have kept pace with the modern trend and progress of medicine have doubtless pondered over the future outcome of this great art. Then, again, they have wondered whether they were justified in continuing to refer to medicine as an art. It is not rather in the class to which belong the sciences! Is it not one big distinct science involving the intricacies and complexities characteristic of all the great sciences? Time was (and not so long ago, at that) when the practice of medicine was a much simpler procedure than at present. A study of the symptoms and remedial agents appeared to suffice. Then came the dawning of a new era; the introduction of the laboratory as a distinct entity in the routine of general practice. Today it will be generally and unanimously conceded that the aid of the laboratory is a valuable, if not a thoroughly essential, adjunct.

Never before, nor do we ever again, expect to witness a period during which so much knowledge has been gained with respect to laboratory work and laboratory findings in so short a time, no sooner does a workable

method appear in the literature than a newer, more plausible and more practical method takes its place. It is beyond the faintest hope of the practitioner to be able to keep up with his work, the progress in the same and the attainments of laboratory technique and the value of the laboratories' results.

To this end the laboratories of the State Board of Health are offering an inestimable aid to all physicians and particularly to practitioners where the aid of the laboratory is reached only with extreme difficulty. It is the hope and purpose of the efforts extended by Dr. Lillian H. South and her brilliant staff of co-workers that such knowledge will become common throughout Kentucky. To this end a course in laboratory technique was offered to the physicians of Kentucky during the early part of June and over fifty doctors responded. The course was given in the State laboratories and extended over a week. The time was pleasantly and profitably enjoyed by all as has been attested by the various communications which have been received from the student doctors.

Beginning the early part of July a similar course of ten days' duration was offered to the physicians, technicians, and nurses of the State. The course included the complete chemical analysis of blood, urine, feces, gastric contents, bile and milk, the identification of intestinal parasites, and the more important pathogenic organisms. Also included were instruction in blood counts, blood typing and lectures in Metabolism. An extreme amount short time and the workers were continually kept busy. The students came from all parts of the State and it is gratifying to know the vast area into which this wonderful knowledge will be disseminated. The students included the following.

Miss Gretchen Anna, Technician, Ashland General Hospital, Miss Ethyl Evans of Danville Hospital, Miss Louise Thomas, Louisville, Miss Ollie Bell, Glasgow Hospital, Mrs. Othur Clark, Madisonville Clinic and Dr. W. C. Davis, Health Officer of Livingston County, Mr. Lous Baer, formerly instructor of Physiological Chemistry at the University of Louisville, was in charge of the course and was assisted by Miss Ruth Callen and Mr. Everett Sandlin. Mr. Baer has had three years' experience teaching medical and dental students and many seemingly difficult subjects in technique were made easy and simple for the pupils. The course was in charge of Dr. L. H. South.

The fifth annual session of the school of technicians will be inaugurated on September 14th with a capacity enrollment and will extend over a period of eight months. Graduates of this school become competent in all lines

of laboratory technique and are represented throughout the State and the South.

OFFICIAL ANNOUNCEMENTS PRELIMINARY PROGRAM OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Diagnostic Value of Painful Areas (Lantern Slides) Dr. Curran Pope, Louisville.

Artificial Pneumothorax in the Treatment of Pulmonary Diseases, Dr. O. O. Miller, Waverly Hill Sanatorium, Valley Station.

The Treatment of Diabetes Mellitus, Dr. Hayes Davis, Louisville.

The Management of Acute and Chronic Ulcerative Colitis of Non-protozoic Origin, Dr. Vernon Blythe, Paducah.

The Medical Management of Thyroid Dysfunction, Dr. W. F. Boggess, Louisville.

The Clinical Significance of the Wassermann Test, Dr. J. D. Allen, Louisville.

The Diagnostic Significance of Abnormal Heart Sounds, Dr. E. F. Horine, Louisville.

The Chemical Analysis of the Blood in the Diagnosis and Prognosis of Disease, Dr. E. S. Maxwell, Lexington.

Diet in Health and Disease, Dr. C. G. Lucas, Louisville.

Surgical Considerations of Tumor of the Breast, Dr. C. A. Vance, Lexington.

Radiation Therapy in Tumors of the Breast, Dr. Keith and Keith, Louisville.

Surgery in the Presence of Diabetes Mellitus. Dr. J. Garland Sherrill, Louisville.

The Surgical Treatment of Peptic Ulcer. (Lantern Slides) Dr. Fred Rankin, Lexington.

The Use of Dyes in the Treatment of Disease, Dr. H. H. Hagan, Louisville.

The Surgical Treatment of Inflammatory Diseases of the Uterine Adnexa, Dr. Scott D. Breckinridge, Lexington.

The Management of Benign Prostatism, Dr. S. C. McCoy, Louisville.

The Treatment of the Troublesome Fractures of the Long Bones, Dr. J. G. Gaither, Hopkinsville.

The Operative Treatment of Infantile Paralysis, Dr. Orville Miller, Louisville.

Surgery of the Pancreas, Dr. Louis Frank, Louisville.

The Relation of Infection of the Nose and Throat Disease and the Ear, Dr. Jos. D. Heitger, Louisville.

The Eye in Systemic Disease, Dr. A. O. Pfingst, Louisville.

Enemata, Dr. Granville Hanes, Louisville.

The Problem of the Crippled Child, Dr. Barnett Owen, Louisville.

Obstetrics as a Specialty, Dr. Walker B. Gossett, Louisville.

The Care and Delivery of the Pregnant Woman in her Home, Dr. L. T. Minnish, Frankfort.

PEDIATRICS

Infant Feeding in Health and Disease, Dr. J. W. Bruce, Louisville.

Annual Address, Dr. Wm. Allen Pusey, Chicago, Ill.

Obscure Fevers in Children, Dr. J. W. Gilbert, Lawrenceburg.

ORIGINAL ARTICLES

SYMPOSIUM ON OBSTETRICS

PRENATAL CARE.*

By HENRY M. RUBEL, Louisville.

To become thoroughly aroused and alarmed over the enormous and, in the greater percentage of cases, the needless loss of lives of mothers and babies, one has but to consult the statistics as published by the United States Census Bureau. While we have been making great strides in almost every other branch of the medical sciences, this one—prenatal care—the one which offers so much in the saving of lives of both mothers and infants, with just the expenditure of foresight, frequent examinations, and some laboratory investigations, has been sadly and miserably neglected. But a gradual awakening is becoming manifest, a desire to save some of those 25,000 women who die annually in the United States as the result of childbirth, and the 100,000 babies that are born dead and the 100,000 or more babies that die within a few weeks after birth, should stimulate every physician as nothing else possibly could, to curtail as much as in his power, this hideous loss of life.

Prenatal care is at best educational in character. While pregnancy is physiological, it may readily become pathological, and to differentiate one from the other, from signs and symptoms, as they arise during the course of pregnancy, should become part of our duty as obstetricians. From many clinics established throughout the country where prenatal work is stressed the knowledge is slowly but surely being disseminated that constant supervision of a healthy pregnant woman is most advisable, and the public is being gradually awakened to the possibilities of its tremendous influence in mitigating chronic invalidism and much misery of the mothers, to say nothing of the babies who suffer damage during this process, and are ready to accept this antenatal supervision and assist their physician by co-operating with him.

A well-taken history of the patient who presents herself to the physician should be obtained at the very first visit. Of special interest along this line is determining any factor which might have some influence upon the mother herself or the child in utero. Past

infectious diseases, acute articular rheumatism, gonorrheal and syphilitic infection, heart disease, nephritis, tuberculosis, thyroid enlargement and various focal points of infection, such as the teeth, tonsils, sinuses, etc., should be carefully considered and any remote effects noted. A previous history of any obstetric accident or any unusual obstetrical condition in the immediate family may be the forerunner of what may happen in this case.

The character of previous pregnancies and labors is illuminating, and any and all causes for a prolonged labor should be investigated at length.

A general physical examination is now made to determine the condition of the heart and lungs. A blood pressure estimation is made, and where deemed necessary a complete blood examination, which includes a Wassermann reaction, is also made. In institutional work routine Wasserman reactions are always made, as it is conservatively estimated that from eight to ten per cent of expectant mothers of the class that go to our public maternity wards give a positive reaction. The breasts and abdomen should be carefully examined, and full urinalyses made.

A vaginal examination is now made to determine whether the patient is pregnant, also to determine the contour of the pelvis, any neoplasms, inflammatory masses, etc., and to measure the pelvis at this time. If the pelvic examination is made reasonably early, any tumor, extra-uterine pregnancy or ovarian cyst which may complicate delivery could be operated upon at this time with safety to the patient. Vaginal and cervical smears are made in suspicious cases. It is important to take the patient's height, weight and temperature. I have been in the habit in recent years of recording the weight of my patients at each visit. It is interesting to note the degree of fluctuation in weights of various mothers.

When the presumptive signs of pregnancy have made themselves manifest, and they are as follows: (1) cessation of menstruation, (2) changes in the breasts, (3) morning sickness, (4) disturbance in urination, it becomes the duty of the mother to consult her physician to confirm her suspicions, and if she is pregnant, to put herself under his supervision, guidance and instruction.

To determine the date of birth the simplest method is to count backward three months and add seven days, which is the average difference between three months and eighty-five days. Again, some obstetricians add seven days to the last day of menstruation instead of to the first, and count backward three months. Only in exceptional instances does

*Read before the Jefferson County Medical Society.

one calculate to the exact day.

The diet of the pregnant woman should be simple, wholesome, and easily digested. Any food which causes distress should be avoided. A light laxative diet which is at the same time satisfying is to be the one of choice. The amount of meat and broths should be limited. Cereals, fresh fruits and vegetables are ideal for their effect upon the intestinal tract. Starches and rich pastry should be avoided. Meat is to be eaten only once daily and then in restricted portion. Water is to be taken freely, at least six or seven glasses daily—filtered. Milk and buttermilk are heartily commended. Milk is most valuable in the diet of pregnancy as it contains all the elements of a perfect food, and is valuable in stimulating the kidneys to healthful action. Every effort should be made to cultivate the taste for milk, for there is no other one food so indispensable to the mother of a nursing baby. Coffee and tea drinkers should dilute their favorite beverages with milk—half and half. Alcohol is absolutely forbidden in any form whatsoever. What we hope to provide for our patient is food that is absolutely essential for the growth of the fetus as well as the mother, and one in which we have an abundance of all the vitamins and plenty of calcium, phosphates and iron. Overeating is proscribed.

Constipation being the rule during pregnancy, we should endeavor to overcome this at the very onset of pregnancy by diet, regular exercise, habit time, and then if need be by some mild medication. Regular hour for stool should be made a definite habit. Occasionally a glycerine suppository or an enema may be given; laxative diet, spinach, barley, tomatoes, bran bread, etc.; prunes, figs or dates are given; occasionally olive oil, three to four ounces, injected into the rectum before retiring acts well. Other remedies such as liquid petrolatum, petrolagar with phenolphthalein, cascara sagrada, or one of several aperient waters, may be tried occasionally. Bran bread or graham, corn, or whole wheat bread may be tried. Senna in some form may be given.

The skin should at all times be kept in the best of condition, therefore, it is well to wash the entire body every day. The bath may be a tub, shower, or sponge bath. The morning is preferable for bathing as there is less danger of taking cold afterward if the water is at least cool. The warm bath is necessary for the thorough cleansing of the skin, while the cold bath is invigorating and stimulating. Both hot and very cold baths are not to be recommended, as well as Turkish and Russian baths, hot sitz baths and ocean bathing. Patients are advised, in the latter weeks of pregnancy, to employ only the standing

shower.

Moderate exercise, especially walking, is to be encouraged. A one or two mile walk daily in the sunlight is excellent. Strenuous exercise is to be avoided. A pregnant woman would do well to spend two hours or more every day in the open air. She should not continue to exercise to the point of fatigue. Swimming, horseback riding, and tennis should be avoided. Motoring should be taken in comfortable vehicles and over smooth roads, so that there will be no jarring or jolting, and the patient should not do the driving herself.

The clothing should be simple and warm and adapted to the demands of climate and season. There must be no pressure on chest or abdomen; no tight garters, as varicose veins and edema might be a result. The clothes should be made so that their weight will hang from the shoulders instead of from the waist band. Low heeled shoes with broad toes are advised. High heeled shoes are dangerous and should be avoided.

Women who have not been accustomed to wearing corsets will scarcely feel the need of adopting them during pregnancy, except during the last month when the pendulous abdomen needs to be supported for the sake of comfort. A girdle may now be suggested for the relief afforded at this time. In the latter weeks of pregnancy an abdominal support will often be found helpful. There are several makes of abdominal supporters and maternity corsets on the market which can be recommended to those women who cannot do without a corset entirely.

Fresh air and ventilation are indispensable and should be had day and night. All the rooms of the house should be thoroughly ventilated every morning.

Eight to nine hours sleep should be obtained if possible; fresh air during the day and open windows at night; prudent eating; warm baths; a comfortable bed with warm but light bedding; a glass of hot milk upon retiring; are all conducive to sleep.

The condition of the breasts and nipples should receive early attention. Pressure and injury to the breasts should be avoided. Heavy breasts should be supported, but pressure avoided. Flat or retracted nipples should be "drawn out" with the fingers during the last ten weeks of pregnancy or even sooner; or the unstoppered opening of a warm bottle may be placed over a flat nipple and held in place until the nipple is drawn up into the neck of the bottle as it cools and forms a vacuum; or, again, an ordinary breast pump may be used for ten minutes several times a day. Heavy and uncomfortable breasts may be supported by brassieres. The nipples should be observed about eight

weeks before confinement to determine whether or not they require special treatment. For touching they may be scrubbed gently with a soft brush or cloth, warm water and soap, for five minutes night and morning, and anointed afterward with solid albolene, or lanolin, and covered with a piece of soft linen.

A thorough examination of the teeth should be made by the patient's dentist as soon as she is assured that she is pregnant. A routine roentgen-ray examination of the teeth to determine any existing pockets of pus at the apices of devitalized teeth is the ideal we are striving for. All abscessed teeth should be extracted either under gas-oxygen anesthesia or novocaine locally. I have not heard of any deleterious effects upon any of the pregnant women from any such procedures or manipulations to date. Temporary fillings are to be made when the woman is advanced in pregnancy.

After each meal the teeth should be brushed and occasionally dental floss used; and an alkaline mouth wash is to be used especially after vomiting and before retiring. Lime water, common cooking soda or milk of magnesia, make excellent mouth washes.

Traveling should not be undertaken at any time. While coitus during pregnancy is inadvisable, it is not within our province to regulate. I advise my patients that it is inadvisable in all cases after the seventh month of pregnancy, and among those women who have had abortions or miscarriages it is best omitted throughout the entire period of gestation. Hyperemesis gravidarum, and in toxemic patients in the later months, should preclude definitely coitus.

The patient should be warned against listening to a group of well-intentioned ladies discussing the latest obstetrical case in their neighborhood; what a terrible time the woman had; how long she was allowed to suffer; how badly she was lacerated; and, finally, why had they not performed a caesarean section? Hearing such exaggerated reports as this, and nothing becomes so horribly distorted as an obstetrical case which has not run along the usual even keel, is it a wonder that our patient becomes somewhat nervous, impatient, morose and at times gloomy? Here is a most propitious moment for the physician to step in and instill confidence and trust in the wavering patient. Just point out all her numerous friends who have passed the ordeal with great success, and the wonderful children, and she will again take on renewed hope and added confidence. It is a trial indeed, but millions and millions of women have faced it,—and successfully at that. The patient's morale must be stimu-

lated when it is noted that she is "down in the depths."

In all cases the patient should be made to understand that maternal impressions—so-called,—rests upon a foundation of misinformation and ignorance. It is anatomically impossible, as the only connection between the mother and the child is through the umbilical cord and placenta; that even if the blood could carry mental and nervous impulses—which it cannot—the maternal and fetal blood never come in contact with each other. The child is completely formed at the end of the sixth week, a time when pregnancy is not usually recognized, and in most of the cases reported the causative mental shock occurred much later in gestation. Most pregnant women have experienced some shocking or distressing sight during their gestations and still, when we look around and inquire about these children we find them to be healthy robust, beautiful, and free from any markings whatsoever. The determining causes of marks and deformities of the fetus are not definitely known, but they are probably to be found in faulty development very early in embryonic life, and, therefore, are not preventable.

The urine of the pregnant woman should be examined frequently, as we all admit that the kidneys are the most vulnerable points in the body during pregnancy. Constant and repeated examinations should be the rule. The patient should be instructed to send a specimen of her urine to her physician every two weeks until the seventh month, then every ten days, and if there is any suspicion of nephritis or toxemia, every day. The physician should ascertain the amount of urine voided in twenty-four hours, and if it is less than fifty ounces, investigate the cause. Tests are made for albumin, sugar, specific gravity, urea, diacetic acid and for casts; and for pus if pyelitis is suspected. Very often sugar is demonstrated, but this can be accounted for by early milk formation in the breasts, and is usually due to lactose in the blood. Dietary indiscretion causing temporary glycosuria should be investigated. A blood sugar test will clarify the diagnosis.

Various other conditions, such as nausea and vomiting, heartburn, cramps in legs, swelling of feet, itching and stretching of skin, varicose veins, hemorrhoids and cramps should be mentioned to round out the usual run of conditions one may encounter during the long, long, months. Simple forms of treatment will usually suffice, although each and every one of them may become particularly baffling. Time will not permit consideration of these in detail, but much might be said and various methods advised.

Leucorrhea, if profuse, should be investigated and vaginal and cervical smears made in all suspicious cases. Specific discharges necessitate radical treatment and especial care after the birth of the child to prevent possible ophthalmia neonatorum. Vaginal douches should be taken only on advice of the physician. Douches should be lukewarm and no irritating solutions allowed. Hot douches may stimulate uterine contractions.

A beginning toxemia of pregnancy which is caused by disturbed metabolism and inadequate excretory processes, may become a more or less serious condition for both mother and child unless recognized early. Such symptoms as persistent headaches, dizziness, disturbed vision, puffiness under the eyes and about the face and hands; high or increasing blood pressure; mental depression; albumin in the urine and epigastric pain, are all possible symptoms of toxemia. The treatment for this condition is as follows: Place the patient in bed and at complete rest; for twenty-four hours only water is allowed; salt intake is reduced; alkaline carbonates increased; milk allowed in varying amounts; large quantities of fluids in the form of plain water or cream of tartar lemonade; daily purgative—Rochelle or Epsom salts; hot pack; twenty per cent glucose solution intravenously if deemed advisable may be tried.

Sudden bleeding, or increase in the size of the uterus with rapid pulse or general symptoms of shock, may be the signs of hemorrhage caused by placenta previa or premature separation of a normally implanted placenta. Prolonged failure to feel fetal movements after they have once been felt is rather indicative of fetal death.

We should consider the role of syphilis as we encounter it in our daily work. Should routine Wassermann examinations be made of all our cases? Should intensive treatment be instituted and should same be pursued for both mother and baby after delivery? Wassermann tests should be made on all patients, irrespective of circumstances and conditions, in public hospital wards. In our private work great discretion must be observed, but where our judgment finds evidences of luetic infection, Wassermann examination should be made irrespective of all else. The treatment of syphilis should be started immediately after the diagnosis is made regardless of the pregnancy. Arsphenamin and mercurial inunctions give the best results. All newborn babies of syphilitic mothers should receive treatment for some time after birth even if no visible signs are manifest.

Cardiac disease complicating pregnancy is a condition requiring constant observation and keen judgment to determine the exact status of the pregnant woman and her ability

to withstand this additional handicap. Ordinarily mild cases of diseased hearts, if compensation is good, will stand the additional strain without exaggerated symptoms. If myocarditis accompanies valvular lesions, especially mitral stenosis, the prognosis is grave. As a rule, most women, regardless of the lesion, may be safely carried through pregnancy. Interruption becomes necessary only at rare intervals. Watchfulness for the very first sign of decompensation and our estimation of the cardiac reserve should guide us in our determination to interrupt the pregnancy. Consultation with a cardiologist should be requested, as this is a condition which may terminate fatally immediately after the birth of the child. All such cases demand absolute rest when compensation becomes broken and constant supervision during the entire gestation. The patient's household duties must be practically nil and her mental state kept as tranquil as possible. At best we are treading on dangerous ground, and our watchfulness should increase with each succeeding week.

In women in whom we find tuberculosis complicating pregnancy, we again find ourselves in a dubious state. How often does the question—"shall I terminate this pregnancy?" arise. I think that in all these cases, as in all of our cardiac cases, a consultant should be called in consultation to aid us in arriving at some definite conclusion. Some women with tuberculosis improve during the period of pregnancy, but decline after delivery. Some authorities advise the interruption of pregnancy in all cases complicated by pulmonary tuberculosis in order that the patient may be given every opportunity to place herself under such dietetic and climatic conditions as may offer every chance of arresting the disease, rather than run any risk of its exacerbation after labor. We should determine definitely the stage of the disease and whether it is active, quiescent or arrested, before deciding upon any radical course. A far advanced case of tuberculosis, even though arrested, is a bad obstetrical risk and should be aborted. If interruption of the pregnancy is decided upon it should be done early, about the third or fourth month, as after the fifth month it becomes increasingly dangerous to the mother. Only time and many statistics will outline definite rules in covering this mooted question as to the advisability and when a therapeutic abortion should be performed. Women with tuberculosis should not marry.

The first visit of the pregnant woman to her physician calls for the filling out of an antenatal sheet which embraces the family history, especially regarding such obstetric accidents as eclampsia, hemorrhage, contract-

ed pelvis, twins, etc.; tuberculosis, insanity, and nephritis. Now, her previous illnesses are recorded in detail, including all operations or any special predisposition. Her menstrual history is required into, and finally a detailed account of her previous obstetrical history.

The general physical examination includes an investigation of the heart and lungs, blood pressure reading, urinalysis, blood count and hemoglobin estimation if deemed necessary, temperature, weight, and if the history warrants, a Wassermann reaction test.

General instructions are given regarding diet, exercise, consultations, or any special advice if needed as the case may require. The hospital and nurse are selected so that everything will be settled before the advent of labor.

Have the patient report every two weeks to your office, on the first and fifteenth day of each month, for a blood pressure reading, urinalysis, and taking of the temperature, pulse and weight. Any evidence of eclampsia, hyperemesis, nephritis, placenta previa or beginning of lung or cardiac disease is eagerly sought for and recorded.

It is my rule to make a complete abdominal and pelvic examination at the seventh month. This includes taking the pelvic measurements, the determining of the presentation and position of the fetus, auscultate the fetal heart and count same. The vaginal examination may reveal the presence of tumors, inflammatory masses, a contracted pelvis, cysts, etc. A rectal examination should always be made as one may easily determine the presentation and position by this method.

The external measurements usually taken are as follows:

1. Intercristal, Cr. 1 equals cm.,
2. Interspinous, Sp. I equals 26 cm.,
3. Bitrochanteric, Bi. I equals 31 cm.,
4. External conjugate, equals 20 cm.,
(Diameter Baudeloque)
5. The circumference of the pelvis, equals 90 cm.,
6. The obliques:
Right oblique, Ob. D. equals 22 cm.,
Left oblique, Ob. L equals 21.5 cm.

The oblique diameters are only valuable where scoliosis exists.

The internal measurements are:

1. The diagonal conjugate, C. D. equals 12.5 cm.,
2. The bispinous, Bi.-Sp. equals 11 cm.
(The distance between the spines of the ischia)
3. The bi-ischial, Bi.-isch. equals 11 cm.,
(The distance between the tuberosities

of the ischia.)

4. The sacro-pubic, S. P. equals 11.5 cm.,
(The distance from the end of the sacrum to the ligamentum arcuatum pubis.)

The information gleaned from external measurements is not as reliable as the internal, but much experience must be had with the taking of the internal measurements ere one can have sufficient confidence in his deductions.

Lastly, it is most important that, to complete a well-rounded examination, routine roentgen-ray examinations should be made to verify opinions regarding the pelvis, such as contraction (relative or absolute), deformities, fractures, separation of the symphysis pubis, etc. Fetal deformities in utero, such as hydrocephalus and anencephalus, multiple pregnancy, early pregnancy, abnormal presentation and position, pseudo-cyesis and fetal death, are corroborated by the roentgen-ray. By this method early pregnancy may be demonstrated where uterine fibroid has been diagnosed. This is a field that offers much and which has not been properly explored or developed. The roentgen-ray is a most important aid to the obstetrician and should be utilized as a routine in our methods of examination. Due to the fact that roentgen-ray exposures are of short duration, no harmful effects have been noted on either mother or child. In all cases where abdominal delivery is contemplated, it is advisable to have an X-ray picture taken before operation.

PITUITRIN IN OBSTETRICS.*

By THOS. K. VANZANDT, Louisville.

The general name of autacoids has been given to the internal secretions of the animal body. These chemical substances control through the blood the mechanism by which the metabolic activities of different organs are correlated. Schafer has subdivided the autacoids into two classes, according to whether they excite metabolic processes or depress them. Pituitrin produced by the posterior lobe of the pituitary gland, belongs to the first class.

Pituitrin excites involuntary or non-striated muscle fibers. It stimulates the musculature of the uterus, intestine, bladder, bronchi, and blood vessels. It causes a rise of blood pressure due to constriction of the arterioles (repeated injections lower blood pressure). It acts as a diuretic, and has a distinct effect on carbohydrate metabolism.

*Read before the Jefferson County Medical Society.

The strongest and most important action is on the uterus. The effect, both clinically and experimentally, is increased functional activity, increase of tone, initiation or reinforcement of peristaltic contractions or firm spasm. The degree of response varies with the excitability of the uterus; and, I may add, with the potency of the preparation used.

A review of the advice relative to its indications and contra-indications given in the literature, a study of statistics, and a resume of my own experiences with it, has convinced me that pituitrin has only one safe use in obstetrics, viz.: in the third stage of labor. It is often a great help if used cautiously for the induction of labor late in pregnancy and in uterine inertia late in the second stage.

Pituitrin is useless for the induction of abortion or of premature labor. In the last few weeks of pregnancy or in cases where the patient has apparently gone beyond the term, it will bring on labor. Especially is this true when we use it with castor oil and quinine. I have for sometime successfully employed the method suggested by Dr. B. P. Watson, of Edinburgh. He advises one ounce of castor oil; one hour later ten grains of quinine; the next hour hot soapsuds enema followed in another hour with ten grains of quinine. Wait three hours and if pains have not started repeat the quinine. A nine hour interval now supervenes and, if necessary, pituitrin is started hypodermically; 0.5 c.c. every half hour until labor sets in, one to three injections producing results.

Don't use pituitrin if labor has been induced with either bag or bougie; or in toxic cases, because of pre-existing muscle damage due to the toxemia.

It is the consensus of opinion that pituitrin must not be used during the first stage of labor and in the early part of the second stage. The only concession made to this rule is in placenta previa or a separated placenta; sometimes being of great value here if used cautiously.

Pituitrin is used in the second stage to stimulate a "lazy" uterus. It is indicated only after full dilatation of the os, rupture of the membranes, and where there is no disproportion between the passage and the passer.

Dr. J. W. Williams makes the following statement:

"Generally speaking, its employment is indicated in two types of cases (in second stage of labor); namely, multiparous women presenting uterine atony after the cervix has become fully dilated with the head high in the birth canal, and primiparous women in whom the head has reached the pelvic floor and requires only a few strong contractions for its

extrusion. In the former, the employment of pituitary extract may obviate the necessity for high forceps or version and extraction, and in the latter for low forceps."

Even though we accept this statement as most conservative and condemn the indiscriminate use of pituitary extract in the second stage just to get the case over with (the doctor is in a hurry; the mother is so anxious to get relief from pain and rest in the arms of Morpheus) have your forceps ready. Danger is ever imminent. We are never sure exactly what effect the extract will have on the uterus. A tetanic contraction may occur and cause asphyxiation of the child by interference with the utero-placental circulation. There may be an unrecognized disproportion or abnormal presentation; if the obstacle to delivery cannot readily be overcome, rupture of the uterus may occur. This means certain death for the child and perhaps for the mother. Have your forceps ready!

The third stage presents an entirely different picture. This is the place for pituitrin. The question at once arises, just when to give it. Tetanus and strictura uteri, the phenomena which preclude the use of ergot before delivery of the placenta, apparently do not follow the injection of pituitrin. The latter stimulates the uterus to contract strongly and regularly, aiding complete detachment of the placenta and favoring its expulsion with the membranes in toto. Its action is evanescent and, if "the hour-glass contraction" should occur, it matters little in a clean maternity. It is a routine procedure in my work to give 0.5 c. c. of pituitrin as soon as the child is born.

Seides, reporting 500 consecutive cases in which pituitrin was administered at the beginning of the third stage, states its advantages as follows:

1. Considerably shortens third stage.
2. It acts as the most effective preventive of postpartum hemorrhage, and especially in cases of protracted labor, over-distention of the uterus (hydramnios, twins), intra-uterine manipulation, and where narcotics or anesthetics are employed.
3. It reduces to a minimum the loss of blood incident to the third stage and to the period immediately following it.
4. It tends to lessen the amount of lochial discharge and shortens its duration.
5. It renders unnecessary all uterine manipulation (gentle massage, kneading, and compression) employed for the purpose of encouraging uterine contraction and guarding against relaxation.
6. It makes Crede's manual expression of the placenta entirely unnecessary.
7. It aids in involution of the uterus.

8. It tends to diminish the after-pains which are due to the accumulation of blood-clots in the uterus.

9. It diminishes the frequency of retained placenta.

CONCLUSIONS:

Pituitrin is a powerful oxytocic and, even in the most carefully selected cases, it is one of the most dangerous drugs we possess.

In whatever dosage given, it carries a real risk to both mother and child.

Its indiscriminate use as practiced today cannot be too strongly condemned.

The occasional existence of a uterus highly sensitive to pituitrin accounts for the disastrous results that have followed its use.

During pregnancy, it will not induce abortion or premature labor.

At full term, when employed with castor oil and quinine, it will bring on labor.

It must not be used in the first stage or in the early part of the second stage.

Late in the second stage, uterine inertia being present, with os fully dilated, membranes ruptured, and no disproportion between the passage and the passenger, pituitrin will stimulate a "lazy" uterus; but must be used cautiously. When there is a choice between forceps and pituitrin, the former is to be chosen, for the forceps can be manipulated at will, but once the drug is in the system it is beyond control.

Its a safe rule never to give pituitrin until the child has left the uterus.

Pituitrin has many advantages and its routine use is recommended in the third stage of labor.

FORCEPS.*

By W. T. McCONNELL, Louisville.

In considering the use of any means or method of shortening labor, let it be clearly understood that no system should be given place which has for its objective the supplanting of Nature's forces. There is no more wonderful or beautiful operation of her laws than in the bringing into being of the human offspring, from the time of conception to the end of the puerperium. And if natural forces could be permitted to work out their ends unimpeded by unnatural obstacles, child-bearing would be nothing more than physiological and no intervention or aid would be needed.

But since disease and improper living through the ages have conspired to place serious obstacles in Nature's way, these forces often become inadequate and disaster ensues. So men have devised various means of aiding her in her heroic efforts. In determining

how far we should permit Nature to take its course before active intervention, someone has said that we should ascertain how much a woman can safely do for herself, not how much she can endure.

The one means that has been the most widely employed to this end is the obstetrical forceps. As one writer has said, "The forceps of obstetrics is an instrument designed to extract the fetus by the head from the maternal passages, without injury to it or to the mother."

The various functions of the forceps were enumerated by Chassagny as tractor, rotator, compressor, dilator, lever or irritator. But modern teaching has practically eliminated all of these except its use as a tractor, and to a limited extent a rotator.

Forceps were first employed in obstetrics as early as 1100 A. D., but were at that time only used on dead children. In the 16th century the family of William Chamberlain in England developed their use in the delivery of living children, but kept the method a family secret until about 1700, when their use became generally known. Many different types have since been devised, but today there are only two main types, the Simpson, the ordinary medium length instrument, and the Tarnier, or axis-traction forceps. A third type, the Kielland, is being exploited in some sections. The most popular of these types is the Simpson, having both the cephalic and pelvic curves, and is the type best suited to the average forceps operation. The axis-traction type proposes to deliver the high or floating head, and is characterized by secondary levers attached to the blades from below enabling the operator to bring the head downward through the pelvis in the line of the natural pelvic curve. The Kielland instrument possesses only a very slight pelvic curvature, but has the usual cephalic curve, and is supposed to be of advantage where the head is not engaged, or is improperly engaged, where rotation is desirable.

The following conditions should be fulfilled before forceps can be applied with safety:

The child must present properly; the cervix must be dilated or dilatable; the membranes ruptured; the head neither too large nor too small; the pelvis not too contracted; and the child should be living.

The principal harm arising from the use of forceps comes from their improper application or their employment at the wrong time. The improper application may be avoided if the operator will take the time and trouble to ascertain the exact position of the head. If by digital examination it cannot be definitely determined, then under light anesthesia the hand should be inserted into the vagina until

*Read before the Jefferson County Medical Society.

an ear can be felt or until landmarks are located that will positively identify the position. A deep cut on the child's forehead is a very poor tribute to the skill of the operator, and the pressure on the sub-occipital portion of the head is extremely dangerous to the child. We feel that this point cannot be too strongly stressed, because with a thorough investigation, it is certainly possible to determine definitely the position of any head to which forceps should be applied. Their use too soon is fraught with danger to both mother and child; and to delay too long is perhaps equally reprehensible.

Generally speaking, forceps may be applied when the head is in low, mid or high pelvis. With the present improved technique in Cesarean section and podalic version, and the relative safety with which either of these operations may be done, it may be said that forceps should practically never be applied to a floating head, and never to a head in high pelvis unless there is some definite contraindication to the use of these other methods. The woman will suffer more trauma from a high forceps operation than from a clean Cesarean section, and certainly very much more than with pedalic version as done by the modern method, and the probability of delivering a live, uninjured child is fully as strong if not stronger than with the high or axis-traction forceps. We can think of no condition in which a child could not be delivered more easily and safely by podalic version than by the application of forceps to a high or floating head, unless it would be some condition of the mother which would constitute a contraindication to the use of surgical anesthesia so essential in the employment of version, and even then the operator finds considerable difficulty in applying high forceps without surgical relaxation.

DeLee, in his latest edition of *Obstetrics*, page 1034, says that version is preferable to forceps on the floating head, but would permit their use on a high head where it would be impossible to move it away to do a version, and yet not quite engaged so as to fulfill the conditions for forceps, the forceps being used as a trial or diagnostic instrument. But that if, after suitable trial, the head will not come in, and version cannot be done, then caesiotomy or hebostotomy must be performed.

Williams, in his latest edition, page 446, says that if the head is only partially engaged, or is floating above the superior strait, delivery is best affected after podalic version, provided the uterus is not too tightly contracted and serious disproportion does not exist.

And while the indications for forceps in the high and floating heads are becoming more

restricted, yet it might be said that the indications for their use in mid and low positions is becoming relatively more frequent. It is the intention of Nature that, as the cervix uteri approaches complete dilatation, the head of the child should steadily approach the outlet. So when it becomes apparent that there is any arrest of this progress anywhere in the course of descent, after good dilatation, from any cause whatever, that constitutes an indication for intervention. Or when it becomes apparent that the life of the child or mother is in danger, some method of terminating labor should be employed. It is not so difficult, as a rule, to detect signs of danger in the mother as in the child, but when there is interference to the child's supply of oxygen as determined by a fetal heart-rate above 160 or below 100, or the presence of meconium in the liquor amnii in head presentations, prompt delivery is indicated.

As to the time to delay intervention when the progress of the head becomes arrested, no definite rule can be laid down, but in a general way it might be said that the average length of time to wait decreases as the head approaches the outlet, so that under ordinary conditions with good cervical dilatation, a head engaged high in the inlet should not be permitted to so remain more than an hour to an hour and a half, and a head arrested at the very outlet should be given aid at the end of thirty minutes.

We feel the use of the forceps to the head in low pelvis should be employed more frequently than was formerly taught. The danger from compression is reduced to a minimum, because the head is usually well moulded by this time, and the cephalic curve of the blades, properly fitted to the sides of the head, exert scarcely more pressure than would be experienced by the unaided passage through the resistant outlet, thereby endangering the child less than would the compression plus the force from behind transmitted as it is through the fetal neck with the resultant danger to the basilar and cervical structures of the child. Then with the added relaxation of the perineum that may be secured with anesthesia, the danger of deep perineal tears is markedly lessened. The perineum should be thoroughly relaxed before bringing the head through the outlet. If this cannot be done by pressure or massage under anesthesia, then an episiotomy may be done, for if the perineum cannot be made to relax under anesthesia, it certainly would not relax with the patient's efforts at expulsion, and a bad tear would surely result. And, furthermore, the period of most intense suffering will be spared the mother. While this factor alone does not constitute an absolute indication for

the use of low forceps, yet it should be taken into consideration in every case. Of course, in the normal delivery the severe pain can and should be controlled, yet where arrested progress occurs at this, the most painful stage, a prolongation of suffering would not be justifiable.

DeLee takes the radical position in his "Prophylactic Forceps Operation," that the forceps should be applied as soon as the head rests firmly on the pelvic floor, and has begun to part the pillars of the elevator muscle; this is preceded by a deep lateral incision through the perineum and vaginal tissues which extends into the levator if the disproportion promises to be great. But this procedure is not to be recommended, he says, as a routine for the general practitioner, as the danger to mother and child is too great to risk, unless arrest in the progress has occurred.

And while we would not favor such a method as a regular routine in all cephalic deliveries, yet our contention is that much damage and suffering could be avoided if the forceps were more frequently applied to the head presenting and arrested at the outlet.

In regard to the use of forceps as a rotator, the Scanzoni operation is still used by many leading obstetricians. This procedure consists in applying the forceps to a head in the posterior position and rotating to an anterior; the blades being removed, then if prompt delivery is desired, reapplying them in the anterior position. This should never be done, however, when the head is in high pelvis, as the sweep of the blades in this location is so great that the pelvic soft structures are often torn from their moorings. It would be better to attempt to turn the head manually, and if descent does not ensue to resort to version. When the head is near or at the outlet and still persistently posterior, the Scanzoni maneuver may be attempted. If this fails it is sometimes better to apply forceps and deliver the head in the posterior position with the face anterior.

If the head has become arrested in the deep transverse position the blades may be applied in an oblique manner, that is, one blade over the anterior malar bone, and the other to the posterior parietal region of the head, then with slight anterior rotation and traction, delivery effected. As a usual thing, if the head is relatively small enough to make forceps rotation safe and simple, the manual rotation would be even more simple and safe.

Forceps are usually contraindicated in a contracted pelvis even though the head is relatively small because, as Schroeder says, "they fit the contracted pelvis like the fist on one's eye."

In face and brow presentations, the instrument has only a limited field. Delivery cannot be safely effected unless the vault of the head can be securely grasped between the blades, and this is obviously impossible with the head in extreme extension occurring in these conditions. More can be done ordinarily with manual methods.

The forceps often render splendid service in delivering an arrested after-coming head in breech extractions. It is a good plan in every breech delivery to have forceps at hand, and if the head is not easily and quickly born, to apply them. In this way many babies could be saved which are now lost through cervical fracture from too much traction on the neck, or too prolonged pressure on the cord.

As to just how much traction may be applied with forceps, our rule should be never to use more force than can be applied with the biceps. To be compelled to brace the feet against the table and pull with brute force is unjustifiable and signifies that we have selected the improper method of procedure. If we are familiar with the natural mechanism of labor, and will employ those manipulations necessary to secure what Nature has taught us should be the course of progress of the head through the birth canal, much sheer force could be avoided. Let us adopt as an axiom that the watchword in the use of forceps should be skillful manipulation rather than muscular force, either in applying them or in the traction employed. Failing to deliver in this manner, the forceps should be laid aside, and other means resorted to.

Let us remember that the application of forceps is a surgical procedure and that while their skillful use has probably done more than any one agent to alleviate suffering and save life in obstetrics, yet their unskilled and improper employment has been the cause of great mortality and morbidity that might have been avoided.

THE INDICATIONS FOR CESAREAN SECTION.*

By HARRY A. DAVIDSON, Louisville.

Cesarean section is probably the most spectacular operation performed upon the human being. In the earliest history of the operation it was probably only performed on dead women to deliver the child and give it a separate burial. After the year 1500 a few cases were reported in which the operation was performed on living women, where all other methods had failed. Surgical methods during this period being very crude, the mor-

*Read before the Jefferson County Medical Society.

tality was frightful, and the operation nearly always meant death for the mother although occasionally a child was saved.

In 1876, when Poro devised his operation, the prognosis was altered very favorably and many more operations were performed. At about this period the indications for Cesarean section were rather limited and were given by Murphy as follows:

1. In the ovate deformity of the pelvis when the conjugate axis is less than 2 inches.

2. In the cordiform distortion from osteomalacia when the distortion is extreme and craniotomy is either impractical or so difficult that the safety of the mother cannot be secured.

3. When tumors are immovable and so occupy the pelvis cavity as to leave a space of only 2 inches between the tumor and the pelvis.

At the present day we would consider these indications rather limited. With the advent of aseptic abdominal surgery, and the introduction by Sanger in 1882 of the classical Cesarean section with greatly improved prognosis, the indications have been extended very rapidly and radically until at the present day the operation is advised in certain cases which could be managed better by other obstetric measures with greater safety for the mother. Not only is the operation resorted to as a preventive of mortality in mother and child, but to prevent morbidity of mother and child. The indications have become so numerous that it will be impossible to discuss them separately, but we will cover the important ones and especially the main groups.

The commonest and most important indication is that due to some deformity of the bony parts of the pelvis of the woman. This condition is recognized when the obstetrician makes his pelvimetric measurements on his primiparous patient or on a multiparous patient who gives a history of previous difficult labor. The indication for Cesarean section in pelvic contraction is either absolute or relative. Originally the absolute indication was a true conjugate diameter of 5 centimeters, but this has been extended until now a diameter of 7.5 c.m. or 3 inches is the least through which one might hope to deliver a normal fetal head by the pelvic route. In all contracted pelvises the relative size of the fetal head must be taken into consideration, because the fetal head diameter may vary as widely as the pelvic diameters. It is even possible to have a pelvis with normal diameters too small to deliver a very large fetal head, and a Cesarean section might be indicated in such a rare case.

In considering the question of a contracted pelvis, we sometimes make the error of considering only the diameters of the pelvic inlet.

Williams goes so far as to state that pelvic contractions of the outlet are the commonest contractions found in white American women. A transverse diameter of 7 centimeters at the outlet is considered by some as an absolute indication for Cesarean section. In borderline cases of pelvic contraction, if the obstetrician is in doubt, he should make a careful exploration of the bony pelvis under general anesthesia in the last month of pregnancy. At the same time the relative size of the fetal head should be determined by pressing it downward into the pelvis, and noting how it fills the pelvic inlet.

Before undertaking Cesarean section for a relative indication certain conditions should be present to insure a successful outcome.

1. The child should be alive and in good condition.

2. The patient must be in good condition physically, not exhausted by long labor, not infected by numerous vaginal examinations, or previous attempts at delivery.

3. She must be in a hospital or equally good surroundings for a major operation.

We will be able only to mention other pelvic indications such as kyphosis of spine; coxalgic pelvis; spondylolisthenic pelvis; obliquely contracted pelvis; transversely contracted pelvis; pelvic exostoses; osteomalacic pelvis; tumors of pelvis; or old fractures of pelvis.

The author performed two Cesarean sections within 20 months on a young woman with a coxalgic pelvis the result of a tuberculous hip in early childhood, both operations were elective and done before the onset of labor and the results were ideal.

Among the non-pelvic indications for Cesarean section we will first discuss fibroids of the uterus. Small fibroids of the fundus as rule, cause very little disturbance. Fibroids near the cervix may become impacted in the pelvis and give rise to an absolute indication for Cesarean section. It is a common occurrence for fibroid tumors which, in the last month of pregnancy, apparently offer insuperable obstruction to delivery, to slip upward out of the way when labor begins, and, therefore, it is a wise rule to follow, to give a few hours trial at labor in every case before operating.

In cancer of the cervix in the early months of pregnancy, complete hysterectomy should be done, the fetus not being considered. If the cancer is not recognized until the later months, then Cesarean section should be done in the interest of both mother and child, the uterus being removed.

Ovarian tumors recognized during the first months of pregnancy should be removed by abdominal surgery and the pregnancy allowed.

to proceed. if the ovarian tumor is recognized late in pregnancy, and it obstructs the delivery of the child, then Cesarean section is indicated at the same time the tumor is removed. Rarely other abdominal tumors or tumors of the vagina may necessitate Cesarean section. Atresia of the cervix may become an absolute indication. A previous complete tear through the rectum which has been repaired primarily or at a secondary operation, frequently becomes a relative indication for Cesarean section.

Does one Cesarean section necessarily mean all subsequent deliveries shall be by Cesarean section? This is a debatable question.

Dr. Barton Cooke Hirst, at the Southern Medical Association meeting in November, 1924, answered this question to his own satisfaction by stating that when he has performed an operation, himself, he has no fear in letting the woman deliver herself subsequently, if there is no other contraindication. If there has been evidence of infection following the operation, or if great care has not been taken in suturing the uterus, it is safer to do another Cesarean rather than run the risk of a ruptured uterus.

In recent years Cesarean section has been advocated as the proper treatment for eclampsia and toxemia of pregnancy, but the mortality has been so great that the conservative methods of treatment are considered by the majority to be the safer.

Placenta previa of the marginal type is not an indication for Cesarean section, and it is better treated by doing a version; but placenta previa centralis especially in a primipara at or near term is now considered an absolute indication for Cesarean section.

Premature separation of the normally situated placenta, or concealed or accidental hemorrhage, is a serious complication of pregnancy and usually results in death in nearly all the children and half the mothers. If it is recognized early and the child is alive, Cesarean section offers the best prognosis for both mother and child. Experience has proven that certain heart lesions such as mitral stenosis, aortic valvular lesions, and myocarditis render pregnancy and labor very dangerous, and abdominal delivery before the onset of labor offers a better prognosis in many cases.

The subjects already discussed in this paper show how numerous are the indications for Cesarean section and yet there are many rare and exceptional cases which time will not permit us to enumerate. The safety of the operation in experienced hands has led the obste-

trician to extend the indications for Cesarean section farther and farther and no doubt at the present time it is being done upon certain cases which could be better handled by more conservative obstetrical procedures.

THE BABY.*

By FRANK J. KIEFER, Louisville.

Last but not least is the result of the superior handiwork of nature. Before the innocent creature arrives in this world it surely passes through a torturous route which takes some considerable time and patience to perform. When there are no obstructions or large crevices along the line of passage, it is all well and better for the traveler, but at times there are considerable deviations in the pelvis at the inlet or outlet, then the position of the presenting parts causes a great deal of anxiety and long delay of progress.

In all cases measurement of the pelvis ought to be taken as a forerunner or guide as to the safety of each patient and offspring. You will be taught by this procedure long before the time has lapsed for a natural delivery when such a condition existed beforehand. When you had ample time to consider all sides of safety and have mapped out the operation of preference, whether Cesarean or forceps, will be resorted to. When one or the other, as it is deemed best for patient and child and the procedure is ready, there should by all means be an assistant, whether doctor or nurse, ready at a moment's notice when the child is brought forth either by Cesarean or forceps operation. When the umbilical cord is clamped and child to be given over to this operator who takes full charge of same, uses all methods of cleansing and removing all obstructive matter, such as mucus and liquor amnii from the mouth, nose and pharyngeal vault, by inserting a finger wrapped with absorbent, sterile gauze in the mouth and a probe with absorbent cotton into nostrils. If there is a good cause to believe that some liquor amnii of vaginal mucus has entered the trachea, then a catheter should be passed into the trachea and suction be exerted.

The method of artificial respiration causes the expulsion of detritus from the trachea and upper bronchi. The mouth and nostrils being clean, a piece of muslin cloth is applied over the infant's mouth. Its nostrils being compressed, the physician or nurse should apply the mouth over the child's and breathe into it slowly, then depress the infant's thorax and breathe into it again. The mouth to mouth insufflation is preferred to attempts at insufflation by means of the catheter. This assists often if persisted in and one may be

*Read before the Jefferson County Medical Society.

able to resuscitate the infant in this way alone especially if of the apoplectic type. In the anemic type over anxiety and heroic action manners kill many an infant. The anemic infant is already suffering from shock, and the attempts which suggest themselves are those to be resorted to when dealing with an adult.

Heat to the sufferer, the injection of a pint of hot saline 2 per cent solution, also about 5 drops of aromatic spirits of ammonia in a half drachm of water by mouth drop by drop, are advantageous. Also good results are obtained by letting the infant breathe frequently before the cord is clamped; also in an anemic condition, when there has been a natural vaginal delivery, to abstract more blood from the placenta. Calmness and absence of over-haste will do the infant more good if simple means are resorted to.

The hot water immersion, known as the Sylvester method, is one of the best means of resuscitation, combined with the Byrd-Due manipulation, which is practical in three stages:

1. extension; 2. semiflexion; and 3, complete flexion, and repeat slowly and carefully. When signs of breathing are established from time to time, with safety, then the infant can be turned over to the nurse who has a place prepared with warmth and comfort, also carefully watching the respiration.

This line or two is a word of caution when the newborn and you have resuscitated, but the breathing is very faint and irregular. In venous congestion examine the glands of the neck, especially the thymus gland, by X-ray, and experience the method of reduction of size in a short space of time. All infants saved are good citizens made.

There is nothing more beautiful in all the world than that tender love which a mother, and only a mother, experiences for her baby. Nothing is so close to her heart and nothing concerns her nearly as much as the welfare of her baby.

The baby is very highly prized by its mother. There is nothing more striking of true love and affection than an infant suckling at its mother's breast. It is one of the greatest and most wonderful privileges of motherhood and ought to always be encouraged. The baby is an innocent creature, lies before your eyes, picture it as you may from all angles of life. You have to wait as the seed is sown, you have also to wait for growth and development under conditions, which the baby is subjected to. Start the infant right and it will be all right, give it freedom of action, plenty of fresh air, cleanliness and proper diet.

DISCUSSIONS

Scott D. Breckinridge, Lexington: I must first express my appreciation of this opportunity of speaking before the Jefferson County Medical Society.

I would like to emphasize one or two points in regard to prenatal care mentioned by Dr. Rubel, particularly the question of diet of the pregnant woman. I think the work of Titus and others has demonstrated the importance of a diet high in carbohydrates and relatively low in protein. The prospective mother needs a greater amount of carbohydrates during her pregnancy than she ordinarily does. So it is well to bear in mind, particularly in those cases with impending eclampsia or toxemia, that diet high in carbohydrates is oftentimes helpful.

In regard to the treatment of flat nipple: I do not know of anything that helps very much in an inverted nipple, but with flat nipple, the repeated use of the electric suction pump starting a month or six weeks before the anticipated date of confinement, will be found of great help in developing the nipple.

As to Dr. McConnell's paper: There is only one practical point I can add, and that is in regard to the question of deciding between manual and instrumental rotation in high persistent posterior position. I believe the operator will find manual rotation very much easier, having the patient under surgical anesthesia, if he will be certain that he pushes the shoulder upward before trying to rotate the head. If the shoulder is low and the head in a high position, even if the head be rotated, as soon as the hand is removed the head returns to its former position in the larger proportion of cases. With definite assurance that the shoulder has been pushed well upward, the head may be then rotated and maintained in the anterior position until forceps can be applied and delivery affected.

Dr. Davidson covered the question of Cesarean section so thoroughly that there is little left to be said. Collected statistics embracing two thousand Cesarean sections in the various clinics throughout the country show the following: In absolutely clean cases the maternal mortality was about three per cent; in potentially infected cases the mortality was six per cent; in frankly infected cases the maternal mortality was between twelve and thirteen per cent. That means two things: first, that one should be very cautious about "jumping into Cesarean section," as an easy way out of an apparently difficult labor; second, that every man who is doing Cesarean sections must perfect himself in the technique of the cervical operation. This method seems of decided advantage not only in clean but also in frankly infected cases.

Edward Speidel, Louisville: Every obstetrician should certainly realize the importance of prenatal care, because analysis of statistics amply demonstrates a tremendous reduction in both maternal and fetal mortality as a consequence of such care.

One should be careful about allowing the pregnant woman to take automobile rides, and especially automobile touring, driving a hundred miles and back in twenty-four hours, because the constant jolting in the early months of pregnancy may lead to miscarriage, and in the months to abnormal presentations. In any event the pregnant woman should never do the driving.

The patient should be cautioned, especially during the later months of pregnancy, about taking hot baths, because this often leads to premature rupture of the bag of waters.

As to the administration of pituitrin: I am inclined to agree with the position taken by Dr. Van Zandt that the only safe place to use this drug is in the third stage of labor. It may have an indication in the second stage with a widely dilated cervix and the presenting part low in the pelvis, but even then it should be given in doses not greater than two to three minims. Those obstetricians who frequently give pituitrin in the second stage of labor in 1-2 to 1 cc. doses should realize that fetal asphyxia may occur from cerebral hemorrhage caused by sudden increase in the utero-placental circulation.

In regard to the use of forceps: I am almost as conservative about their application as I am about the administration of pituitrin. Specialists in obstetrics no longer perform high forceps operations, because they realize that if the presenting part will not descend into the pelvis, it is due either to disproportion between the head and the pelvic zone, or to malposition of the uterus, perhaps lateral, forward or oblique displacement of the uterus. I believe podalic version in high occipito posterior cases is preferable to manual rotation, even if the shoulder is first pushed upward before the head is rotated, for the reason that after the head has been rotated into the anterior position the patient has to be kept under surgical anesthesia to permit these manipulations, and she still has to go through the entire second stage of labor. Podalic version at this stage will permit completion of the delivery within ten to fifteen minutes while the patient is still unconscious.

When the presenting part is engaged in the pelvis, the important feature, of course, is proper diagnosis of the position and the application of forceps according to that position. If moderate traction does not cause descent of the fetal head, there is very likely some obstruction at the pelvic outlet. If there is a narrow pelvis the proper

treatment would be pubiotomy. Instead of forceps delivery, where the head is fixed above the superior strait, version is preferable provided everything else is normal.

As to Cesarean section: It is not so important to enumerate the various indications for Cesarean section as to determine the necessity for this operation by care during pregnancy. In this way one may recognize the presence of disproportions, pelvic abnormalities, neoplastic formations and anything else which would make normal delivery impossible. In clean cases the maternal mortality from Cesarean section is almost nil, provided the operation is performed at the proper time. However, if the patient is permitted to undergo prolonged efforts at labor and in consequence becomes physically exhausted, the mortality is considerably increased. And, of course, it will be still higher if the patient has been subjected to frequent vaginal examinations or repeated attempts have been made to complete delivery with forceps. The most important feature is recognition of existing conditions long prior to the onset of labor. This can only be done by prenatal care.

In regard to methods of resuscitating the baby after birth: Perhaps the most important item is one that we have used in the maternity wards of the Louisville City Hospital for a number of years, i.e., a small tank of oxygen equipped with a medium-sized catheter. This catheter is introduced into the trachea of the baby and oxygen thus allowed to enter the lungs. Many babies have been saved by this simple procedure. An additional emergency measure is to introduce directly into the heart by hypodermic needle two minims of adrenalin in normal saline solution.

Walker B. Gossett, Louisville: As to high forceps application in occipito posterior positions: If version or rotation can be accomplished, this method is preferable to the high forceps operation. In the event version or rotation is impossible, high forceps application becomes necessary.

In regard to prenatal care: Dr. Rubel's paper, which we have heard, and one by Dr. Edward Speidel just published (*Southern Medical Journal*, February, 1925) cover the subject completely. Sometimes, however, the patient will not obey orders given by the physician concerning prenatal care, and if instructions are not followed, harm may result where good was intended. Whenever a pregnant woman refuses to obey my orders, she is promptly told to select another physician.

As to estimating the date of labor: A fairly accurate rule is to count backward three months from the last day of menstruation and add seven days. There are many other methods, but none are infallible, and errors are frequently made.

Referring to the use of pituitrin in labor: We as physicians are prone to be either radical or conservative. Some obstetricians advise giving pituitrin in all the stages of labor, others condemn its use at any time. When pituitrin was introduced, the dose recommended was 1-2 to 1 c.c. I recall having once given 1-2 c.c. which produced such alarming symptoms that chloroform was administered and delivery completed immediately. It has since been my custom to give 2 to 4 minims at a dose. Pituitrin is a most valuable agent in obstetrics, but is not devoid of danger if improperly used. It minimizes and shortens the suffering of the patient, it often obviates the necessity and danger of instrumental delivery. In premature I give 2 minims as the initial dose. If the head is well engaged, or presenting on the perineum, the increased force from above by uterine contraction, assisted by the abdominal muscles, soon terminates the labor. In multiparae I frequently give 4 minims as the initial dose. No harm can result from pituitrin if the cervix is dilated and the head engaged.

As stated in my paper before the 1924 meeting of the Kentucky State Medical Association (see Kentucky Medical Journal, February, 1925), pituitrin is indicated:

1. In prolonged labor.
2. When the patient shows evidences of exhaustion.
3. When the uterine contractions are becoming weaker.
4. In uterine inertia with fetal head on perineum.
5. In fetal complications.

To make these indications valid, however, the following conditions must be fulfilled:

1. The relations of fetal head and pelvis must be normal.
2. There must be engagement of the presenting part.
3. Fully or nearly dilated, or dilatable os.
4. Normal presentation.

I was one of the first physicians in Kentucky to use pituitrin, and I have never yet seen a bad result. The only time I was the least uneasy after its administration was in the one instance already mentioned where I gave 1-2 cc at a single dose, and the first dose.

Concerning forceps application: Since the introduction of pituitrin I have seldom used forceps. As already stated, I administer 2 to 4 minims of pituitrin, repeated if necessary. Increased uterine contraction promptly ensues, the head descends to the perineum, and the child is quickly extruded. If uterine inertia occurs, and the head becomes arrested at the perineum, low forceps are applied to complete delivery. Rarely has the third dose of pituitrin been required. I use the De Lee forceps altogether and believe it is the best instrument made.

With reference to Cesarean section: During recent years this has become a popular operative procedure, and as a consequence has been performed when there existed no valid indications therefor. During the last year four women have been referred to me for opinion as to Cesarean section. In only one was the operation necessary; the remaining three were delivered normally without especial difficulty or untoward incident. In one low forceps had to be applied. All the mothers and babies lived.

As to the baby: The infant is passed to the care of the family physician after the first two weeks. While under my observation in the hospital I see that the baby learns to nurse, and if no gain in weight is noted on breast milk, dryco is ordered, two drams to the ounce the first week, and four drams the second week.

Wm. B. Doherty, Louisville: I agree with Dr. Rubel in regard to the importance of prenatal care. The pregnant woman should be seen by her physician frequently during the later months of gestation and her diet, exercise and elimination should be regulated. During the last month, as a routine measure, I give her a solution of cream of tartar, as a pleasant diuretic, and syrupus calcii lactophosphatis as occasion requires. She should be in the best physical condition possible at the onset of labor.

The average white American girl of today has a splendid physique, has "pep" and energy; she has missed the diseases of childhood, such as cholera infantum, diarrhea, diphtheria, etc., and their infections and complications to which her sister of forty years ago was subject. She walks erect, is neither rickety nor tuberculous, and has a well-proportioned pelvis. But, paradoxical to state, the mortality and morbidity incident to her normal labor has increased, owing, I believe to irrational interference, and measures fraught with danger to herself, her child, and soft parts, by the hastening of labor.

As to Cesarean section: This operation should never be performed without definite and positive indications. Ten years ago a dwarf was in labor at the Sixth Street Hospital. Two surgeons who had measured her found that her "pelvic diameters were entirely too small to permit delivery, and that Cesarean section must be performed." She was in excellent physical condition and labor was allowed to proceed. Forceps was used and she was delivered of a healthy child now as tall as his mother, with whom he may be frequently seen walking Fourth Street. Later in the Louisville City Hospital a negro woman, a hunchback, carefully measured and pelvic diameters found too small, was delivered of a normal child, without even a nurse or physician being present. The measurements (by pelvimetry) are only approximately correct, on account of

the varying degrees of stoutness and osseous development. The size of the child's head, the relaxation of ligaments and motility of the joints are important factors that cannot be determined as to the improbability of normal delivery. The limping or waddling walk, the rolling gait of congenital dislocation of the hips, are characteristic of pelvic contraction. Schiller says 'tis the curse of evil deeds, that they give rise to greater evils. Cesarean section, I am confident, is too often unnecessarily performed. The vogue for something new, but not necessarily true, has gripped the profession with the spirit of try—try new means and remedies—with disastrous results.

Not so long ago the profession became very enthusiastic over the presumed advantages of twilight sleep, commercially advertised, and rightly discarded. Then came the wonderful remedy, pituitrin, that, according to statistics published in the Journal of the American Medical Association, was the cause of twenty women dying of rupture of the uterus in 1919, and will eventually be thrown into the discard. It produces tonic, often tetanic, not eclonic contractions, and like ergot should not be used while the child is in the uterus. Williams, in the Journal of the American Medical Association, November 29, 1924, says:

"I regard pituitrin as somewhat dubious in its use in the treatment of prolonged labor under the most favorable conditions, and as extraordinarily dangerous in the presence of disproportion or mal-position of the child." Beck, of the Long Island Hospital, has revived, after nearly one hundred years, the use of the abdominal binder as an aid in the second stage of labor.

Mention of two important features was not made in any of the papers read in this symposium, viz: the proper method of applying the forceps with safety, and the posture of the woman in the perineal stage of labor. A rule of thumb—two hours delay after rupture of the bag of waters and dilatation of the cervix before the forceps is applied—should be maintained. Slow delivery, making traction during a uterine contraction for half a minute, and unlocking the blades for half a minute, or imitating nature, is far safer than the use of pituitrin which may dangerously increase the *vis a tergo*, while with the forceps the *vis a fronte* assists the uterine force.

The action of the forceps may be controlled, but that of pituitrin cannot be restrained even with chloroform, and the liability to a ruptured perineum is enhanced by its use. In the perineal stage, with the head bulging, the lateral posture should be utilized so that the force of the abdominal muscles may be lessened, the perineum more slowly distended, its integrity better preserved, and assepsis more easily and safely main-

tained. This posture is taught and practiced on the Continent of Europe, in England and its dominions, and, though recommended in the text books published in this country, the vice-like tenacity with which we cling to the hysteria of speed that characterizes almost every other line of human endeavor has even entered the sacred precinct of the lying-in room with injury, for the lateral posture (toward the end of the second stage) is far more honored in the breach than in the observance.

Dr. Joseph B. De Lee, in the Journal of the American Medical Association, March 14, 1925, in an article on the low or cervical Cesarean section, states that it is a notorious fact that too many Cesarean sections are being done, five hundred women dying annually in the United States following abdominal delivery. Women are operated upon who should not be exposed to its risk, and this element of mortality, he states, could be reduced by reverting to the old and tried obstetric methods of delivery.

Oscar O. Miller, Louisville: The question of pregnancy and tuberculosis is a most perplexing one. We are handicapped by traditions and statistics handed down to us from fifty years in the past. There is an aphorism which has been woven into medicine that a tuberculous woman should not marry, that if she does marry she should not have any children, that if she has children she should not nurse them. Is it not possible that tuberculous may have become modified in the past fifty years? I rarely see today cases of acute, progressive tuberculosis or phthisis florida except in people who have had little opportunity for infection in childhood, such as Cubans, and occasionally negroes.

H. E. Robertson, of the Mayo Clinic, at the 1924 meeting of the National Tuberculosis Association, recorded his observations covering fifteen years in autopsy work. He said that fifteen years ago in searching for tuberculous foci he found twenty-seven per cent showing active tuberculous, and sixteen per cent healed lesions, for all ages. Today (1922 to 1923) he finds sixty-three per cent healed and only 4.5 per cent active or recent tuberculous lesions, and in the age group over 31 years ninety-one per cent healed, and from six to thirty years 8.5 per cent healed.

A review of statistics shows that the death rate from tuberculosis has been declining since 1865, or since we have had reliable statistics in regard to the disease. I have contended that this is evidence of increased resistance to tuberculosis. I can see no reason why many tuberculous women with minimal lesions could not be safely carried through the period of pregnancy under the methods of prenatal care described by Dr. Rubel.

In deciding the question whether or not a pregnant tuberculous woman should be aborted there are many factors to be considered. First, the stage of the disease, whether the lesion is incipient, moderately advanced, or far advanced. Second, the condition of the lesion, is it active, quiescent, or arrested. I think we are all agreed that a woman with active, far advanced pulmonary tuberculosis should be aborted, and it is really to our discredit when such women are allowed to become pregnant. In my opinion the majority of them should be sterilized, either with radium or the X-ray. Economic factors enter into the situation, for those most in need of the procedure are unable to bear the expense.

It is always important to ascertain whether the tuberculosis lesion is unilateral or bilateral, and whether the disease is recent or long standing. How long after the arrest of a tuberculous lesion is it safe for a woman to become pregnant, is another question often asked. If she has a minimal to a moderately advanced lesion which has been arrested and there is no evidence of cavitation, after five years have intervened without any evidence of activity, I believe a woman can safely go through pregnancy. Not infrequently have I seen such women become pregnant and be delivered at term without recurrence of the tuberculosis.

In tuberculosis we must differentiate between proliferative and exudative types. In the proliferative type, with the formation of numerous discreet tubercles, there is a greater tendency to sclerosis. In the exudative type there is a greater tendency for the disease to extend and form caseous masses and cavities.

In unilateral pulmonary involvement, even in the presence of an active lesion, if the woman has advanced to the fourth or fifth month of gestation, I think she can be carried to a successful conclusion of the pregnancy by the induction of artificial pneumothorax. At present we have such a case in the sanatorium, the woman has active left-sided tuberculosis with a cavity at the apex. Since the induction of artificial pneumothorax she has remained afebrile and is now eight and a half months advanced in pregnancy. (Patient delivered four weeks ago and doing well.) It is a fact that some tuberculous women go through their period of pregnancy with reasonably good health and with improvement of their pulmonary condition, but after delivery the disease becomes very active.

In the Agricultural College, of Wisconsin, there has recently been in progress some interesting work on calcium metabolism and calcium content of the blood in pregnant animals. Time will not permit detail description of the result of this experimental work, but the indications are that the information obtained may be of importance

in the care of pregnant tuberculous women. We know how essential it is to preserve the calcium balance during pregnancy.

I believe that the chapters in our text books in regard to tuberculosis and pregnancy need to be rewritten. In advanced, progressive cases of pulmonary tuberculosis, and even in moderately advanced or second stage cases, I believe the patient should be aborted if seen early. In the earlier stages of the disease, in quiescent, latent or arrested cases, one should use proper discretion, since it is known many such patients can be safely carried through pregnancy without aggravation of the disease and with the production of normal, healthy children.

Dr. Kiefer in his paper spoke of resuscitating the asphyxiated baby by blowing into its mouth: I consider this an exceedingly dangerous practice. There are cases on record where tuberculosis was transmitted to the baby by this method of artificial respiration. Moreover, it is impossible to force air into the lungs by blowing into the mouth, the air invariably enters the stomach. This fact has been demonstrated in prematurely born infants where it was desirable to inflate the lungs for the purpose of roentgen-ray study.

J. B. Stroud, Louisville: I agree with practically everything Dr. Gossett has said in regard to the use of pituitrin. This drug is indicated in many cases and under a variety of circumstances. In primiparae, where the cervix is well dilated and the head engaged, 2 minims of pituitrin will frequently hasten descent and facilitate the completion of labor without the least danger. I use pituitrin a great deal, but like Dr. Gossett, I give small doses. I have found that pituitrin has absolutely no effect upon the child that a long, hard labor would have without pituitrin.

I think forceps are dangerous in the hands of anyone who is not thoroughly familiar with their application. Some physicians seem prone to use forceps where instrumental delivery is not indicated, in their desire to hasten delivery. We should take ample time and never resort to forceps unless it is absolutely necessary. If we are deliberate and do not attempt to hasten delivery there is little danger of doing any harm to the baby or the mother. Many times the administration of pituitrin obviates the use of forceps. During the last few years, since beginning the use of pituitrin, I have performed many less forceps operation than I did formerly. On the other hand, I think the application of forceps decidedly preferable to Cesarean section in most cases, unless there is contraction of the pelvis, or great difference between the size of the child and dimensions of the pelvis. Forceps delivery is much safer for the mother than Cesarean section. In my obstetrical experience there has been

no demand for Cesarean section. I recall one small woman with contracted pelvis where I did not believe it would be possible to deliver the child through the normal channel. I endeavored to get the family to consent to the Cesarean operation, but they persistently refused. After consultation with one of my friends I decided to try forceps. The child was rather easily delivered in this way although the pelvis was exceedingly narrow. I think many times if we will give forceps a thorough trial we will find that Cesarean section is unnecessary. The Cesarean operation should be reserved for a last resort on account of the danger incident to future pregnancies.

Alex. Nettleroth, Louisville: As regards the warning against the administration of pituitrin in labor: In my opinion this warning should not be made too strong, nor should the use of pituitrin be deplored. In my own experience the introduction of pituitrin has transformed my obstetrical practice, it has shortened the duration of labor, saved the woman many hours of suffering, often prevented forceps delivery, and obviated the dangers of Cesarean section. Delivery is often accomplished with the greatest ease after the administration of 2 to 4 minims of pituitrin, and I have never seen any bad results to either the mother or child. I use it in the first and second stages of labor, rarely or only occasionally in the third stage. I can see no reason for withholding pituitrin in any stage of labor provided nature is producing proper labor pains. I do not hesitate to use it in any stage where the pains are not normal. In primiparae I usually give 1 minim as the initial dose, rarely have I found 2 minims necessary. On only rare occasions have I had to administer half an ampule or 3 1-2 minims. It is always advisable to begin with small doses because we never know the strength of the preparation being used. Standardization of the drug is still imperfect. There is no greater aid to the conduct of labor than the use of pituitrin when there are proper indications for it. Pituitrin should not be given unless the conditions justify a full test of labor and the unaided pains are lagging.

Walker B. Gossett, Louisville: The statement made by one of the previous speakers that twenty women were killed during the year 1919 by the administration of pituitrin should not be allowed to go on record without some explanation. We know nothing about the dose of pituitrin given how often it was repeated, nor the circumstances under which it was administered. If someone died as the result of an overdose of strychnine or morphine, would the profession discontinue the use of these drugs?

I have had physicians tell me that they were in the habit of giving pituitrin in doses of 1 c.c., repeated as often as seemed necessary. It is no wonder that rupture of the uterus has occasionally occurred following such tremendous doses.

Wm. A. Keller, Louisville: My observation has been that in obstetrical practice no two cases will be found exactly alike, and I do not believe the obstetrician ought to be governed by any rule or schedule. A plan of procedure should be evolved for each case, and when that is decided upon the physician should not deviate from it one way or the other. One can never foretell whether the patient is going to have a hard, prolonged labor or whether it will be short and uncomplicated. I am not speaking now of mechanical obstructions, but ordinary cases of labor. It has been my experience that short labor is just as apt to result in perineal injury as prolonged cases. Much often depends upon the attending physician and the methods employed in delivery.

I was rather slow in adopting the routine use of pituitrin in obstetrics, but since I began its use in suitable cases the results have been so happy that I have wondered why I did not adopt it sooner. Pituitrin* has shortened the duration of labor by many hours, but as has been stated it should be used with judgment. I have never used pituitrin in the first stage of labor. As Dr. Stroud has stated, years ago it was my custom to use forceps rather frequently. In more than fifty per cent of the cases in which forceps would formerly have been employed, the patients have been delivered after the administration of pituitrin without as many lacerations, even the small so-called obstetrical tears, as would have occurred had forceps been used. If the head is presenting and the uterine contractions are weak, by giving a small dose of pituitrin the woman may be assured of a safe delivery within a few minutes. I have often found that uterine contractions continue following the administration of pituitrin even after the baby is born.

Judgment should be used in the application of forceps. These instruments have often been employed without definite indications. Moderate traction at intervals followed by a similar period of rest will be found much more effective and less damage will be caused mother and child than by using prolonged inordinate traction according to the plan formerly in vogue. Too much force should not be used in forceps delivery because of the danger of inflicting damage upon the child or tissues of the mother.

The prenatal care and treatment described by Dr. Rybel should be emphasized. His plan is excellent and we would do well to follow it. Of course, certain modifications must be made depending upon the surroundings of the patient, her intelligence, etc. We cannot always tell the

patient just what she must do. We are not all as fortunately situated as Dr. Gossett, some of cannot afford to tell the patient to seek another physician. We have to consider the patient and her surroundings and be governed accordingly.

REPORT OF A CASE OF HEART DISEASE.*

By J. ROWAN MORRISON, Louisville.

C. E., male, white, aged seventy-eight, was admitted to the Louisville City Hospital about the middle of December, 1924. The history, physical and laboratory findings recorded in detail, but condensed for lack of space into the following recapitulation.

The patient is a well-developed and fairly well nourished man whose past occupation was that of gardner. His chief complaint was dyspnea, cough, swelling of the ankles, and frequency of urination. Has had recurrent attacks of dyspnea for past two years. Gets dyspneic after slight exertion. Edema of ankles appeared with sudden onset two weeks ago. He has never felt sense of palpitation. Apex beat 11 cm. to left of mid-sternal line.

There is no history or evidence of any serious diseases in childhood or post-childhood, except the following:

Had gonorrhea twenty years ago. Had influenza in 1918 and did not go to bed. Had rheumatism (?) in left elbow and shoulder about ten years ago. This was not accompanied by fever, tenderness or swelling, and there is not now any evidence of arthritis. He had all teeth removed two years ago as they were decayed. Denies lues. Has an area covering lateral and anterior portion of right leg showing past varicosity of veins. There is no hypothorax nor ascites. Heart sounds are totally irregular, sometimes five or six beats are heard before a pause which is followed by a strong beat; at other times three or four beats occur before a pause. A pulse deficit together with extra-systoles are detected. Blood pressure 124-84. Patient says he had right ankle dislocated about thirty years ago.

Examination shows urine normal except faint trace of albumin. Phenolsulphonephthalein intramuscularly, excretion first period twenty-five per cent, second period ten per cent.

Wassermann blood reaction negative. Erythrocytes 5,020,000, leucocytes 8,200. Differential mount normal. Hemoglobin eighty per cent (Tallquist).

Diagnosis, auricular fibrillation; chronic myocarditis with decompensation; ulcer of right foot.

The patient is presented; he is well-nourished as you can see, and from the history and laboratory findings there are few things that have happened to him that could have given him heart disease. Still, you might say, any man seventy-eight years of age has heart disease. However, if you will think about it, you will know that this is not so. Here is a man with myocarditis and auricular fibrillation. He had a badly decompensated heart when admitted to the hospital, and still has considerable decompensation although he is markedly improved. The only cause for his trouble that stands out in a carefully taken history and examination is a severe attack of influenza in 1918, at which time the patient did not go to bed and take care of himself. There is some question also whether or not the present attack of decompensation was not preceded by a mild influenza which was prevalent at the time his present illness began.

To my mind influenza is the cause of this man's heart disease, as it is so many times the cause of this trouble. In my opinion a patient with the mildest case of influenza should be carefully protected at the time of the attack and examined later to be sure that the disease has not left some permanent trouble.

There was some question of focal infection from his teeth. His teeth were decayed and thirteen or fourteen were extrated two years ago. This was followed by no particular relief, although I think it was a wise thing to have the teeth removed. Whether the teeth had anything to do with his heart trouble seems rather unlikely.

A review of the laboratory findings of kidneys and urine shows no particular trouble, only a faint trace of albumin, and his blood pressure was practically normal.

As to the treatment and what should be done about these cases? When this man came to the hospital he was given one dram of the tincture of digitalis every four hours until four doses had been taken. The edema of the feet and his shortness of breath began to quickly disappear. After that time, from the 16th to the 23rd of December, he received fifteen drops of tincture of digitalis three times a day. At that time the chart showed the same difference between the apex beat and the pulse at the wrist. The edema is still improving.

The next view about this case: Much can be done for this man after he leaves the hospital. Several years ago when I had charge of the out-door cardiac clinic I saw a great many patients similarly afflicted and all of them were dismissed much improved. Whether this man needs digitalis all the time I doubt very much. I would have him return for observation every two weeks. It might be

*Read before the Jefferson County Medical Society,

wise to give him small doses of digitalis, say five drops three times a day, or ten drops twice a day, and observe the effect. He needs rest followed by graduated exercise just short of the point of fatigue. I think it would be a mistake to place him in bed continuously and restrict exercise which he is able to take.

DISCUSSION

Emmet F. Horine, Louisville: The case presented by Dr. Morrison is representative of a class often seen. This type of cardiac irregularity is one frequently encountered, and certainly one that we can treat with the expectation of securing the desired results.

As a rule cases of this type respond nicely to proper treatment. First, of course, is rest, second the administration of digitalis. This is the one type of heart disease in which we can be sure of beneficial results through the administration of digitalis. If the condition is urgent, the idea would be to very quickly digitalize the patient. By determining the weight of the individual we can figure quite easily the dose of digitalis necessary for digitalization. For the standardized tincture the factor ordinarily used is 15. For example, if the individual weighs one hundred pounds we multiply the factor by 100 which will give us the necessary amount in cubic centimeters. The result, 15 cubic centimeters is approximately equal to four drams. We know that the patient, if he has not previously had any drug of the digitalis group, can be given approximately four drams of the standardized tincture of digitalis within twenty-four to forty-eight hours, and that he will tolerate that amount very nicely. Of course, after that amount has been given in dram doses every six hours if the symptoms are urgent, or half dram doses if not urgent, then reduce the dosage to a maintenance one. Ordinarily the maintenance dose for an average patient is somewhere around twenty minims per day. We know that the amount of tincture of digitalis which can be excreted daily by the average individual is approximately twenty minims, therefore, we give that as a maintenance dose continuing it for an indefinite period. The chronic fibrillator must usually take digitalis for the remainder of his life.

The question of other therapy in individuals of this type naturally arises. In a certain number of instances, particularly where the individual is in fairly good condition and the heart is not enlarged, after the acute symptoms have subsided we can consider the administration of quinidin sulphate for the purpose of abolishing the fibrillation. We recognize that digitalis will not abolish the irregularity. Even if digitalis is given over a period of years the irregularity will in most instances be maintained; but by the administration of quinidin we can, in more than

half the cases, make the heart resume its normal rhythm and in that way help the individual materially. Quinidin should be given very cautiously at first to see whether there is any idiosyncrasy present then if no untoward symptoms arise from a trial dose of five grains, increase it daily by five grains until a maximum of approximately forty grains each day has been reached, or until the irregularity ceases and normal heart action is resumed. The daily dosage is then reduced to a maintenance one of from ten to fifteen grains.

In those individuals who are markedly edematous and decompensated a milk diet is valuable, and lately many observers have been using calcium in some form. Some advise calcium chloride in amounts varying from one hundred and fifty to three hundred grains daily, or calcium lactate in like amount. It has been found that the edema will very often disappear under the combined therapy of first rest, second digitalis, then the Karrell diet plus the administration of calcium.

Curran Pope, Louisville: There is one thing which should always be borne in mind. I am very much inclined to believe, after the passage of the thirty-fifth or fortieth year of life, that any attack of influenza is well worth our most careful and serious consideration. In fact, it is oftentimes the mild cases in which the greatest harm is done as the patient continues to go about. I believe it will not be disputed that the heart muscle is readily attacked by this particular micro-organism. Our constant observation at my hospital is that the fluoroscope shows that influenza leaves traces which can be found many years afterward shown by a thickening of the bronchial tree, peribronchial spaces and glandular involvement, so much so that we generally call this the "influenza-syndrome." The person who has had this infection within a period of a year or two, is certainly much more susceptible to other micro-organismic invasions, particularly by the streptococcic group, and a heart that is already weakened by the effects of influenza can very easily be further weakened by the fourth invasion of other micro-organisms from the teeth, gums, tonsils, or any focus of infection.

I have listened with a great deal of interest to the therapeutic suggestions which have been made in the discussion and with all of which I most heartily agree, and all of which I employ.

There are many other things which offer considerable aid in such cases. Anyone who will apply cardiac diathermy will unquestionably improve the tone of the heart muscle flooding it with blood thus making the medicinal agents or chemicals one is using more effective as well as relieving many of the subjective and disagreeable symptoms which cause the patient to suffer.

Another very useful method is that of hydrotherapy carefully, properly and scientifically applied. Various forms of hydatics are often beneficial. The cold sponge applied with a rough mitten followed by friction with a rough towel or the use of a rough towel folded and dipped in cold water and applied over the cardiac area with alternate tapping will bring about a reaction in the circulation and improve peripheral activity in a way that will materially aid the other measures that are used. The ice bag should be used with care and cautiously.

It has always seemed to me that very little objection can be entertained to these procedures, for they do not in any sense interfere with methods that are employed in a medical way, but they oftentimes support and accelerate the action of remedies that we are employing in a strictly chemical way.

J. Rowan Morrison (Closing), Louisville: I wish to thank the gentlemen for their discussion which has been very interesting. In reporting the case I did not discuss at length the proposition of auricular fibrillation. The patient was merely presented with no history of anything except influenza which might be the causative factor in the observed cardiac condition. As stated in my report he had a badly decompensated heart when admitted to the hospital, and still has slight decompensation. This man was given four drams of tincture of digitalis after admission. The dose was then reduced to 15 drops three times daily.

As to the after-treatment of this case. If I had to choose between rest with graduated exercise and digitalis, I would rather have rest and graduated exercise. I mean exercise not to the point of fatigue but to slight exhilaration.

DERMATITIS EXFOLIATIVUM NEONATORUM.*

By **LESLIE H. WINANS, Ashland.**

Dermatitis Exfoliativum Neonatorum is an acute diffuse inflammatory affection of the skin of infants, accompanied by exfoliation of the epidermis in flakes, running a rapid course, and often fatal.

Although exfoliative dermatitis in the newborn was only described by Ritter in 1878, it is probable that the disease had occurred before this time, but had been described as an unusual manifestation of Pemphigus or some other disease. The credit of establishing the disease entity belongs to Ritter, who observed and studied it in the Foundling Asylum at Prague, about 1878. Ritter regarded this affection as a form of pyogenic infection.

G. Behrend was the first to consider the subject after the appearance of Ritter's article. He reported seven cases, which had been communicated to him in 1868, by Litten, a Pomeranian physician.

Kaposi, in 1881, claimed that he had seen many such cases and agreed with Ritter in differentiating it from pemphigus. He did not believe it to be of pyogenic origin, but thought it the result of an increase in the physiological desquamation of the epidermis in the new-born.

Caspary reported a case in 1883, but refused to consider the disease a dermatitis, arguing from the absence of fever that the process was not inflammatory, but probably an acute disturbance of nutrition, occurring in those external layer of the skin which do not contain blood vessels.

Elliott in 1881, in the American Journal Medical Science, reports two cases which came under his observation. Both the reported cases were of the dry type postulated by Ritter. One of the cases died, the other, having a much milder form, recovered.

Byron Whitford, in 1881, described a case of exfoliating dermatitis. It occurred in a female, normal birth, on the second day. The skin could be peeled off, sometimes in large strips and patches, till most of the skin was shed, leaving a red, inflamed, angry looking base which dried, shriveled and cracked, again forming a secondary covering, thinner and of healthier appearance than the first. Although recovery was not complete at the time of the report, in spite of artificial feeding the child had grown and increased in weight.

Baumel in a Paris lecture in 1900, stated that there was but one previous mention of such a case in the French Medical literature. This case is noticeable as there developed a discreet acneiform eruption of the thighs but soon became confluent.

Hazen reports a case admitted to the Johns Hopkins Hospital in 1912, with the whole of the body, except palmer and plantar surfaces, thickly studded with blebs varying in size from two to ten millimeters in diameter. In the axilla and groins the outer layer of skin peeled as from a burn. Cultures taken from the bleb yielded pure cultures of staphylococcus albus. The most interesting feature of this case of dermatitis exfoliativum is the objective similarity to pemphigus foliaceus.

Cairns, in the British Medical Journal, Feb. 3, 1923, describes a case. This author states that no cases were reported in England before 1900, but that recently, one or two isolated cases had been noted.

Fisher and Wittenberk, in Arch. Derm. and Syph. September 1924, report a case occurring in a six day old infant whose mother had developed a fibrinous pericarditis during the 8th month of pregnancy.

The disease rarely appears before the end of the first week and usually between the

*Read before the Boyle County Medical Society.

second and fifth week of life. The outbreaks vary in acuteness and intensity. Some cases are preceded by a dry scaly condition of the skin which persists after the physiological desquamation of the epidermis has taken place and this is known as Ritter's prodromal sign.

Starting from a diffuse redness, most commonly on the lower part of the face, the hyperaemia spreads rapidly over the body, the extremities usually being the last affected. Synchronously with the extension of the hyperaemia, exfoliation of the epidermis begins on the surface first affected. Exfoliation may occur without any evidence of exudation; the epidermis being slightly thickened, wrinkled, dry and fissured into pieces of all sizes. Again upon the reddened surface of the trunk and face an outbreak of small vesicles may appear and be followed by exfoliation in the usual way. Still again the horny layer over the intensely red surface may be lifted by fluid accumulation into large, irregularly shaped, flaccid bullae. After the exfoliation, regeneration follows, at times rapidly, the extremities requiring somewhat longer time to regain their normal color. In those cases in which there is no exudation a longer time is necessary for the casting off and regeneration of the epidermis. Relapses are occasionally observed ten or twelve days after the first attack.

In a typical case the process is unaccompanied by fever or other systemic disturbance, unless there is an existing internal complication. The general functions are normal and the baby's weight will remain stationary or even increase.

Fatal cases result either from the intensity of the attack or from some intercurrent infection, though more usually from some of the sequellae, furunculosis, etc.

Of Ritter's 297 cases, there were 165 males and 132 females. The mortality was 48.82 per cent.

E. F. Skinner, in the *British Journal Dermatology* 1910, gives a detailed microscopic examination of a typical case of Ritter's disease. A summary of his findings are as follows:

The histology of the condition is characterized by a lifting up en masse of the horny layers of the epithelium from a rapid exudation of serum tending to collect in "lakes," on the surface, which exudate is obviously the result of the striking edema noticeable in the prickle cell layer, which in its turn is due to the vascular dilatation prevalent in the dermal and hypodermal vessels. These facts, together with the presence of cocci on the surface, probably due to accidental contamination, and the absence of any leucocytic infiltration, constitute the most striking histological features. If the exudation of poly-

morphonuclear leucocytes is considered as an essential sign of inflammation, then Ritter's disease is not a dermatitis. The author suggests that it is due to a hem-agglutinin circulating in the blood stream and producing intravital clotting. We may then conclude that the etiology is not definitely established.

CASE REPORTS.

Case 1. Baby H., female; at term twin; breech and born second; weight 6 lbs. Breast fed and supplemented with Horlich's Malted milk. Infant nursed well, slept well, and seemed to be perfectly normal in every way. After the initial blushing the infant continued to have a rather bright pink color. On the tenth day the mother states that the color became quite noticeable. The next day a bleb had appeared on the index finger of the left hand. In the course of the next forty-eight hours the entire horny layer of skin, of the face, neck, trunk, extremities, (except the palms and soles) became elevated and sloughed, leaving an angry red base. The child had the appearance of being ealed. The skin over the abdomen and chest peeled in two large flaps.

I first saw the infant at this time. The temperature (rectal) was 98.6; respiration 32 and regular. Infant seemed bright and has relatively normal strength. Nurses quite vigorously; slept well until desquamation, since then has cried and worried at frequent intervals. Past 24 hours has been vomiting even water and has had frequent watery bowel movements. Twelve hours later the gastro intestinal symptoms were checked. There was no wet nurse at hand and albumin milk was used as I thought these symptoms due to the mother's reaction. The breast was used again at the end of 24 hours. During the second 24 hours the infant rested well, nursed and reacted in a relatively normal manner. The inflamed areas began drying and it seemed that there was definite improvement. The infant continued in this condition for about 48 hours. At the end of this time the infant awakened from a seven hour sleep. The nurse noted a change in the respirations and general condition. The infant was dead within half hour. Seemed as though the little thing was utterly exhausted.

Case 2. Second twin. On the fourteenth day a distinct pink circum oral blush appeared which faded at the periphery. A discreet small vesico-papular eruption developed on this base and this was followed by a drying and scaling of this superficial skin layer. A similar condition developed on the abdomen and chest. There was no temperature, or other apparent reaction. There was a gradual and complete recovery. This infant had had very weak bi-chloride baths, given as a

prophylactic measure, four days before the eruption appeared.

Comment: Two types of Dermatitis Exfoliativa Neonatorum as postulated by Ritter, occurring in twins.

A REVIEW OF THE SYPHILITIC INVOLVEMENT OF THE VASCULAR SYSTEM.*

By BROOKS WILLMOTT, Louisville.

Fordyce¹ maintains that syphilis is primarily a disease of the blood vessels and his view is now generally accepted, as the chancre always shows, pathologically, an endarteritis and a panarteritis. All stages of syphilis show this change, usually first in the perivascular lymph spaces, shortly involving the interior of the vessel walls with a resulting granuloma characterized by the appearance of small mononuclear and plasma cells with the formation of new capillaries and fixed tissue elements. The formation of a gumma is simply due to disintegration of the tissues because they are less resistant to the action of the invading organism—"treponema."

Clinical records and autopsies are rapidly showing us how often this very common and dreaded disease involves the heart and vascular system. Many years ago Grossmann² wrote that in 288 cases of secondary syphilis he found a marked disturbance in rate and rhythm in 85 per cent, and murmurs in 40 per cent. Cabot³ found that in 1592 patients suffering from heart disease, syphilis was probably responsible in 74 cases. Practically all observers now agree that aortic insufficiency is most often caused by syphilis, and Warthin⁴ has shown that it often plays a leading part in the cause of myocarditis.

In 314 cases of late acquired lues, Symmers⁵ reports from autopsies, sclerotic aortic valves in 64 instances. Harlow Brooks⁶ in his 50 consecutive autopsies upon syphilitic patients with heart disease found pericardial disease 28 times, myocardial 44 times, true cardiac gumma 5 times, and 35 instances of true coronary arteritis.

Warthin, recently reports that autopsies on 41 syphilitic subjects showed active syphilitic heart disease in 36 cases. It might be well to emphasize that these characteristic early changes can only be found on section under the microscope, a fact which will doubtless explain negative findings in leptic autopsies where only macroscopical findings are noted.

Syphilitic changes in the heart may be classified as follows:⁸ Pericarditis; myocarditis; endocarditis; valvular disease; disease of the coronary arteries; angina; cardiac aneurism and heart block.

Brooks has found pericardial changes in 28 out of 50 syphilitic hearts these changes were a mingled endothelial and fibrous hyperplasia of the terminal arterioles. However, they are found in other conditions than lues.

Myocardial involvement, as pointed out by Grossman, may occur quite early. Hazen has reported serious myocarditis in a physician before the secondaries became manifest. Clinically, the manifestation may occur early or late in the disease.

Anders and Brooks⁹ have well described the clinical symptoms which characterize the secondary stage as arrhythmia, particularly intermittences and tachycardia, and at times extra systoles, irregularity marked after exercise or nervous fear. Pain is not common, but cyanosis is frequent. Warthin states that fatty degeneration of the heart muscles is often the only lesion found, the fibres being atrophic and filled with fat globules—later calcium deposits may follow. Necrosis is only found in virulent congenital affections, being independent of any vascular change, liquefaction of muscle tissue being due directly to pressure and action of closely packed spirochetes.

Syphilitic endocarditis and valvular disease, as pointed out by Albrecht¹⁰, Citron¹¹, Longscope,¹² Babcock,¹³ Sachs,¹⁴ and many others, most frequently result in aortic insufficiency and aortic endocarditis. Definite statistics show that 75 per cent of all cases of aortic insufficiency occur in syphilis. This lesion occurring in the young is almost certain to be of specific origin. On the other hand, syphilis rarely causes other forms of valvular trouble. Anders states that the lesions usually develop in two to three years after infection, severe pains attending invasion of the valve segments, often accompanied by angina pectoris.

Syphilitic disease of the coronary arteries, according to Brooks,¹⁵ in 50 autopsies performed upon syphilitic heart patients was found in 35 instances. He believes that syphilis has a special predilection for these vessels and may attack even before the secondary rash appears.

In the diseased vessels which spread outward into the heart muscles all sorts of changes from a granuloma and true myocarditis to fibrosis and necrosis—the symptoms are about the same as a myocarditis with perhaps more pain.

Angina—with involvement of the coronaries—sometimes result in complete closure of endarteritic processes; pain is not uncommon. Anders¹⁶ has collected 270 cases of angina pectoris from the literature, in which 72 gave evidence of lues. Other authorities admonish us to look first into the patient's history for

*Read before the Jefferson County Medical Society.

this infection; these patients may show a negative Wasserman but may speedily improve on small repeated doses of arsphenamine.

Heart block, or Stokes-Adams disease, according to the best authorities, is due to specific infection in from 10 to 60 per cent of all cases, and, while aneurysm of the heart is unusual, Brooks¹⁷ has found it in three cases out of 50 autopsies on syphilitic hearts, and Osler long ago stated that the left ventricle near the apex was the usual site.

With regard to treatment of syphilis of the heart: It must, of course, be understood that whenever tissue is destroyed it can never be restored. However, before destruction has taken place vigorous antisyphilitic treatment will accomplish much good—this, it is universally agreed, to be followed by mercury. That aortitis is quite common was recently demonstrated by Symmers¹⁸ who found it present in 175 out of 314 cases of late acquired syphilis. In this series the arch alone was affected 109 times, while the entire aorta was diseased 49 times, with combined lesions in 29 instances. This condition is prevalent in men (80 per cent of the cases), appearing usually before 50 years of age, with an average of about 40, and is usually noted from 10 to 15 years after infection. Its symptoms are pain, palpitation, dyspnea, and tachycardia. Its usual complications are aortic insufficiency, angina pectoris, and aneurysm.

Regarding treatment: Ehrlich advised against salvarsan, but many of the best men in the country are administering carefully-guarded half-doses of arsphenamine, following it with intramuscular injections of mercury, and getting much relief from pain and distress. Syphilitic arteritis must not be confused with thrombosis of an artery from other causes, from Reynaud's disease, and from thrombo-angietic obliterans.

Spontaneous thrombosis is rare, usually unilateral, negative Wassermann, and does not subside under anti-syphilitic treatment. In Reynaud's disease usually paroxysmal attacks first appear, between which there are periods of perfect health. This disease is almost always symmetrical, and it is not unusual for the nose, ears, or cheeks to be affected, and the pulse in the artery is not lost. Thrombo-angietic obliterans usually presents the following symptoms and invariably occurs in Russians: The pulse is lost, arteries most usually affected are dorsalis pedis, posterior tibial and popliteal, with typical symptoms of impaired circulation, true vasomotor disturbance of transitory nature; some pain or intermittent claudication; slow, progressive course with a peculiar type of migratory phlebitis; in the course of either, the internal

or external saphenous is involved in about 20 per cent of the cases. Males are usually affected.

Aneurysm, since the advent of the Wassermann reaction, it has been generally accepted that from 50 to 85 per cent of patients show a positive blood reaction, but undoubtedly other acute infections may be its cause. Osler¹⁹ cites a case of Renon's where acute rheumatic fever was responsible, and Hawthorne has reported a case due to tuberculosis. Thoracic aneurysm most concerns syphilographers and early diagnosis is most important. There are two types: The diffuse, which is a general dilatation of the walls of the aorta, and the circumscribed, due to partial rupture of the wall in one portion only. In the former type the physical signs are usually more pronounced than the symptoms. Pulsation may be noticed in the second or third interspace, accompanied by thrill, diastolic shock and an aortic systolic murmur.

In aneurysm of the transverse and descending portions of the aorta, symptoms are more prominent than physical signs due to the structure pressed on. Pain in the chest, intercostal neuralgia, oppression, difficulty in swallowing, and cough should always put us on our guard. Here the fluoroscope is far the best means of early diagnosis.

Regarding treatment, there is a division of authorities, though the tendency is to administer guarded half-doses of arsphenamine followed by mercury. While the aneurysm cannot be cured, the pain seems to be due to the syphilitic process rather than to pressure, so much temporary relief can be promised.

Arteriosclerosis and hypertension are by no means synonymous terms; either may, and frequently does, exist without the other. Literature concerning the importance of syphilis in these affections is scanty. While Cautley and Albutt believe syphilis plays a very small part in the production of either of these conditions, Stoll²⁰ states that in 50 individual cases studied, 90 per cent gave either a positive Wassermann, or leucic test, or were known to have had lues, or had children with congenital syphilis. His work, however, is subject to criticism. One would be safe in suspecting lues in children who have renal hypertension perhaps if no history of severe malaria, pneumonia, or scarlet fever could be obtained.

In syphilis of the veins, Hoffman's article is still the classic. He describes three forms of venous syphilis: The diffuse thickening; the nodose thickening; and erythema nodosum syphiliticum. Hutchison²² has described a fourth form; a periphlebitis, usually involving the leg between the knee and ankle.

Syphilis of the spleen was found by Wile in 36 out of 100 cases of primary and secondary lues, often appearing before the rash. Osler describes four types of splenic involvement in late syphilis. Involvement of the lymph nodes, according to Friedlander,²³ who has written the best article, is important; for instance, he found the epitrochlears enlarged in 77 per cent of syphilitics and only 27 1-2 per cent in non-specific conditions. The occipitals 82 per cent inluetics, and only 45 per cent in other conditions. Post cervicals 84 per cent in syphilitics, and only 47 per cent in non-syphilitics. Glandular enlargement in the negro race is much more frequent and more pronounced than in white. Universal glandular enlargement, and especially submammary and epitrochlear involvement, should always suggest lues.

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DISCUSSION

Curran Pope, Louisville: Among the interesting things that have been presented to the medical profession has been the work of Russell, of Toronto, Canada. He has shown that over-activity or over-functioning of any part of the body, especially of the nervous system, is very likely to centralize the activity of the specific micro-organism of syphilis in that particular region. For example, in tabes we are more likely to get the lower leg type in an individual who walks all the time; the upper arm type is found in the shoemaker. He also speaks of a case of optic atrophy following passage of a man over the snows of Canada who had lost his black glasses.

It has always seemed to me that the reason why the aorta at its arch and upper segment was much more prone to show active evidences

of syphilis than many other portions of the large vessels of the vascular system, was due to this very same proposition of over-activity or over-exertion. In other words, it is for the same reason that in over-exertion of the muscular structures of the lower limb we are more likely to have the *spirochaeta pallida* located in that particular part of the nervous system that governs the lower limbs.

It is true that cardiac and vascular lesions of syphilis in the thorax and in the vascular system itself are deserving of our earnest consideration, but I had hoped the essayist would consider more fully the part that syphilis plays in the vascular supply of the cerebrum. Of course, we know just what the syphilitic poison does to the arteries of the brain, and the frequency with which it is the underlying pathological causative factor in the production of many crippling ailments outside of the question of its direct action upon the vascular system. In other words, this infection after it gets into the vascular system predisposes to other lesions that follow, and in that way may cripple or upset the patient, we might say, tremendously.

The question oftentimes of syphilitic infection and resting so secure, safe and snug upon a positive or negative Wassermann reaction is an extremely dangerous one in my opinion. If an individual has syphilis, I believe any careful diagnostician and thorough clinician will be able to find actual physical symptoms of the presence of a specific lesion or the passage of the specific poison through the body, it matters not whether the blood shows a positive or negative Wassermann reaction, for that may just be merely a weathervane of the blood state or the spinal fluid state, as the case may be, at that particular time. The question of diagnosis of syphilis does not present a difficult problem. Those of us who belong to that narrowing special class posing as practitioners, who were taught to diagnose, to understand, and to search for evidences of syphilis long before the advent of the Wassermann test, are very much more prone to base our diagnosis or tentative diagnosis upon the physical and other findings that are present than to depend entirely upon Wassermann reactions.

I have some very definite ideas about the Wassermann reaction, one of them being that if you have taken a specimen of blood to the laboratory for Wassermann test and it has been found negative, if you want to have another test made do not go to another laboratory, have the same man make the test under the same conditions and with the same reagents and in the same manner as on the previous occasion. Outside of that we must consider the varying factor of the individual, the mental attitude or viewpoint of the man making the Wasserman reaction. This is an extremely important factor if we are going to depend upon the laboratory test and not

upon what we find clinically. The matter of passing patients from one serologist to another is a dangerous one and may be productive of a great deal of trouble and dissatisfaction. I have had this to occur on several occasions. One serologist may report a four-plus positive Wassermann reaction, another a few days later report a negative reaction, and at the same time the patient may have loss of sensation on one side, with reflex and pupillary irregularities, with "syphilis written all over him," the diagnosis being self-evident whether a Wassermann test is positive or negative. I always have Wassermann tests made by those I consider competent in this class of work. In vascular syphilis we very frequently find a negative Wassermann when there is no question in the world that the patient has had syphilis and is suffering from its after-effects.

It must also not be forgotten that just because an individual has had syphilis there may not be other causes of physical disturbance coincidentally active in the system at the same time. I am candidly of the opinion that many things attributed to syphilis might be more reasonably explained by consideration of other conditions. It must be remembered that the vascular system is one that is extremely sensitive as it should be to all psychic and eural impressions that may enter into its complex make-up. Therefore, we get varying changes in pressure, changes in distribution, all of which must be considered when dealing with a case in which we believe syphilis has involved the vascular system. While I am willing to admit that syphilis is probably one of the larger Devils in his Satanic Majesty's horde, still we should give the Devil his due and not charge him with more that legitimately belongs to him!

J. Rowan Morrison, Louisville: Dr. Willmott has presented a most excellent resume of the subject. Since he did not refer especially to the symptoms of syphilis involving the central nervous system, but confined his remarks largely to syphilis of the heart and aorta, I will discuss the subject from that standpoint. In the Archives of Internal Medicine for November, 1924, there is an interesting article by Scott on this subject.

I have changed my mind in some respects about the treatment of vascular syphilis. In the beginning I was more prone to give arsphenamin in small doses than I am now. At the same time I have seen cases where arsphenamin seemed to give relief to pain and amelioration of symptoms that could not be obtained in any other way. There are undoubtedly some cases in which arsphenamin should be given, and others in which it is contraindicated. I do not believe it is ever indicated in syphilitic aortic insufficiency of any marked degree. It has been my experience that these cases are best treated with mercury and the iodides. The patients given mercury by in-

unction have improved more rapidly than when other methods were employed, and some of them have done remarkably well. In other cases I have resorted to the old-fashioned mixed treatment with very good results. I was greatly impressed by the statement made by Dr. William Alley Pusey at one time in this room that any patient who has had syphilis, even after all symptoms had disappeared, should be given the old-fashioned mixed treatment now and then. Other observers are beginning to realize that when people have syphilis mercury and iodides constitute the best treatment, especially mercury by inunction. I have found this the best method of administering mercury in cardio-vascular syphilis. In my opinion digitalis is often indicated along with other means of caring for the damaged heart. But in the olden times, before we recognized that such manifestations were due to syphilis, the patients were simply treated by digitalis administration but rarely was any permanent benefit noted. Much better results have been secured since syphilis has been recognized as the cause of the symptoms and our methods of treatment have been changed accordingly. Whether the patient has aortic insufficiency or other cardio-vascular manifestations, an important point to remember is that we are not treating syphilis per se, we are treating its after-effects upon the heart. Under rest, regulation of habits of life, general tonic medication, etc., some of these patients get along remarkably well at best. There is one thing we must guard against, and that is to specifically instruct the patient to avoid over-excitement. It is dangerous for them to become unduly angry or over-excited. If necessary they should be urged to arrange their occupations to avoid heavy work and worry. Under proper medication, with light work and avoidance of excitement, they may continue to live for some years in comparative comfort. I believe many of them are made worse by the administration of large doses of arsphenamin. Mercury, preferably by inunction, the iodides, rest and general tonic treatment will produce the most favorable results.

Emmet F. Horine, Louisville: The subject of vascular syphilis is a very important one, and for that reason I desire to mention a few facts. Its importance may be readily recognized when it is remembered that autopsy reports from the various large clinics show that of the total autopsies made cardio-vascular syphilis is found in from 3 1-2 to 7 per cent of cases, and that autopsies on known syphilitics show cardio-vascular syphilis in from 75 to 85 per cent of cases. I believe it was Warthin who stated that just as soon as secondary lesions appeared invasion of the aorta and of the heart would be found. In other words, the spirochaetae pallida invade the

aorta and the myocardium in the secondary stage, therefore, every syphilitic is a potential cardio-vascular subject.

The treatment, to my mind, should be made dependent upon the stage in which disease of the cardio-vascular system may be found. For example, one might divide the cases into three groups: (a) potential cardio-vascular syphilis, that is those in the secondary stage; (b) those showing mild symptoms of cardio-vascular syphilis, perhaps pain of the anginal type, sometimes tachycardia, etc.; (c) those with more advanced grades of cardio-vascular syphilis, that is with aortitis and aortic regurgitation. In potential cardio-vascular syphilis one would not hesitate to give intensive treatment. In the second group one should be cautious about administering the arsenicals and rely upon mercury and the iodides, using the arsenicals, if desired, in small doses and carefully. In the third group, comprising those with a definite involvement of the aorta and aortic insufficiency, the arsenicals in my opinion should not be given. In the Louisville City Hospital, in times gone by, we have seen individuals getting along, as Dr. Morrison has stated, fairly well under mercury and the iodides, then someone would attempt to improve them still further and give them arsphenamin, with the result that the symptoms would be aggravated and considerable trouble result. In fact, in other places, sudden death has been reported following the administration of arsphenamin in this latter group of cases.

J. Garland Sherrill, Louisville: The essayist did not mention vascular changes which are observed in congenital syphilis. We are all familiar with conditions of that kind occurring in young children with clubbed fingers, faulty development, cyanosis, etc., due to poor circulation. Some of the most marked vascular change due to syphilis are seen in children.

Another point of importance is aneurism: It has long been the custom of the profession to treat such cases by the administration of large doses of potassium iodide. It has been found in recent years and especially by cases in the Louisville City Hospital observed by Drs. Tuley and Turner, that aneurisms treated by iodides of potassium were seen to dilate markedly under roentgen-ray examination. That is a most important observation.

My opinion of syphilis is that it should be adequately treated if possible before the development of serious vascular changes. If the patient is seen early and intensive treatment applied vascular syphilis can usually be prevented. When seen later, however, it is oftentimes found that treatment fails to prevent further inroads of the disease.

The reason why in my opinion—theoretically—that arsphenamin seems to produce harmful results in vascular syphilitic disturbances is that the spirochetæ pallida are awakened from their dormant or natural location thus leading to the development of an active process. This is shown by the development of a positive Wasserman reaction after administration of a small dose of arsphenamin in case of so-called latent syphilis, the parasites being awakened to renewed activity. On the other hand, it must be remembered that a patient may have syphilis with a persistently negative Wassermann reaction. I have shown before this society a man with a syphilitic liver which extended below the umbilicus. The diagnosis of syphilis was made from the clinical findings the Wassermann test being negative. Mercury by injection was prescribed and the enlarged liver disappeared as if by magic. A very good rule to follow is that when the laboratory and clinical findings do not check, the laboratory findings should be disregarded and the clinical symptoms followed.

In early syphilis of the acquired type, and in congenital syphilis, vigorous treatment should be instituted. In aneurism one should be cautious about administering arsphenamin and the iodides. Mercury is the sheet-anchor in these cases.

Edward R. Palmer, Louisville: Fordyce is right in his statement that syphilis is essentially a disease of the arterial system. It is usually only in the later stages when we have tertiary and quaternary syphilis that other tissues are involved. This is due, in my opinion, to one of two things: one the natural inability of the patient to resist the invasion or passage of the spirochaetes from their normal habitat—walls of the blood vessels—into the deeper tissues; but more commonly I am inclined to think that physicians are responsible for the organisms passing from their natural field into one in which they are unaccustomed to work. I believe this is the result of treatment as at present applied. The spirochaetes are like other micro-organisms;

when they are attacked or disturbed they have a tendency to penetrate, and the more strongly they are attacked the deeper they penetrate and the worse are the resulting conditions.

As regards the treatment of vascular syphilis: I cannot for the life of me see the logic in using arsphenamin, particularly in late cardio-vascular syphilis. It may be well to recall the fact that arsphenamin was introduced primarily as a spirochaetocide. It is not, of course, in the tissues, but it was used with that idea. The early types of cardio-vascular syphilis, will respond to the ordinary forms of antisyphilitic treatment. The cardio-vascular type of syphilis developing ten to twenty years after inception of the disease is an entirely different proposition. In this type we are not combatting active spirochaetes as much as we are the results of their activity which has extended over a long period of time, we are attempting to resolve anatomico-pathological conditions, such as mesarteritis and endarteritis, and what we should use is not a drug that acts primarily as an antisyphilitic drug, but one which has particular action on low grade granulomatous tissue, and if there is a drug in the world that does this it is mercury. As Dr. Sherrill has said, mercury is the sheet anchor in all forms of syphilis and particularly is this true in the late stages.

In the last issue of the Journal of the American Medical Association there appears a letter from Dr. Frey, of Budapest, in which he says that in paresis and locomotor ataxia the best treatment is unquestionably inunction with mercurial ointment combined with internal administration of iodide of potassium. In some cases he advocates the use of arsphenamin, but says it should be given with extreme caution, as he believes there are two sources of danger in arsphenamin, too little is dangerous and too much even more dangerous in these conditions.

I cannot see the rationale of administering arsphenamin in cardio-vascular syphilis, in view of the fact that it has been shown definitely that arsenic has a deleterious effect upon the blood vessels in many cases.

C. Brooks Willmott, (In closing): I certainly appreciate the liberal discussion on my paper. I agree with the previous speakers that, so far as we now know, mercury is the one drug which will effect a cure in syphilis. Of course in all cases the patient must be treated as an individual. When the patient is seen late irreparable damage may have already been done.

In syphilis of the vascular system arsphenamin may be indicated when active spirochaetes are found circulating in the blood stream, but even then I believe small doses should be given. After the damage has been done, as Dr. Palmer

says, after the organisms have penetrated into the deeper tissues, little benefit is to be expected from the administration of arsphenamin.

In our clinical work we have arrived at the point where if a patient over forty-five applies for treatment with a history of ancient syphilis, we no longer give arsphenamin unless there is an active syphilitic lesion. We may first give a half dose of arsphenamin and follow that with mercury and potassium iodide. We use mercurial inunctions wherever it is possible to do so. In private practice it is difficult to persuade the patient to use inunctions and we have to resort to other methods of administration. Personally I have had trouble in getting the patient to come to the office for hypodermic injections of mercury even once per week. It is quite impossible to administer inunctions personally, and the patients often refuse to apply this method.

The old-fashioned mixed treatment is usually effective if properly and persistently given, but patients frequently refuse to continue the treatment for three or four years. Wonderful results have been secured, however, by this method. I have reason to believe that many of my patients have been cured of syphilis by the old mixed treatment.

REMOVAL OF A SEVENTY-FOUR POUND CYST UNDER LOCAL ANESTHESIA: CASE REPORT.*

By E. S. ALLEN, Louisville.

There is scarcely a major operation that cannot be performed under local anesthesia. In the judgment of some operators removal of brain tumors under local is preferable to general narcosis. Thyroidectomies, cholecystectomies, gastro-enterostomies, enterostomies, appendectomies, herniotomies, etc., are of common occurrence. But the field of local anesthesia is where kidney, heart, lung and general exhaustion contraindicate ether or gas narcosis.

I think every surgeon prefers operating when the patient is under a general anesthetic, if for no other reason than a time saving factor. There are occasions when ether or gas would very much increase the operative risk, and such was the case that I am to report tonight.

Mrs. Scott, of this state, referred to me by Dr. Gowdy, gave a history of an abdominal growth of twenty years standing. For many years she suffered little or no inconvenience, but as time passed she observed that the mass was increasing in size. Living far in the country, where it was customary to endure rather than seek relief, especially where it might be necessary to use the knife, this poor

*Read before the Jefferson County Medical Society.

woman patiently endured the discomfort of this large growth until the pressure so embarrassed her respiration and circulation that she could not sleep. The abdominal pressure, too, was so great that she had been unable to retain any food for ten days or two weeks. Exhausted and emaciated, she presented a pitiable picture.

After a few hours rest from her long trip an aspirating needle was inserted into the abdomen for diagnosis, a needle of small calibre being used.

A dark tenacious fluid was drawn into the needle.

Feeling certain that we were dealing with an ovarian cyst, a large needle was introduced and five quarts of fluid withdrawn. The relief from pressure served both to give the patient considerable comfort and gradually allowed the mesenteric vessels to accommodate to a lessened intra-abdominal pressure. The patient had been vomiting for ten days or more, she was, therefore, very much dehydrated. Her urinary output was quite scanty. Urinalysis, 1030, albumin, a trace, no sugar, solids and urea normal.

Proctoclysis of glucose and soda was instituted and water given freely by mouth, which she was able to retain after aspiration of five quarts of fluid from the cyst. She was given orange juice and broths at intervals of three hours. She had a very good night, having slept at intervals of one to three hours at a time. She seemed refreshed the following morning, but was not a good subject for general anesthesia.

A preliminary dose of morphine gr. 1-6, atropin gr. 1-150 was administered at nine o'clock. The field was blocked along the left rectus muscle, as the pedicle of the tumor apparently came from left broad ligament. The incision was made without complaint from the patient. The peritoneum was infiltrated and opened. A large trocar was inserted into the cyst and three and one half gallons of fluid withdrawn. There was adhesion of the cyst to center abdominal wall. The peritoneum was infiltrated with novocain and cyst dissected free.

The broad ligament was blocked and clamped in sections, for it was very thick and broad. The cyst was thin and was excised without the slightest discomfort to the patient.

The only pain complained of was when Dr. Goldsboro sponged a clot from the fundus of the uterus. A quart of saline solution was poured in the abdomen and incision closed by the usual method with catgut and silk worm gut stay sutures.

The patient left the operating room in much better condition than when she came in. Proctoclysis was instituted, liquid nour-

ishment every three or four hours and pituitrin given at six hour intervals. The patient at no time expressed any discomfort. Her recovery was uneventful and she went home yesterday feeling fine and happy.

The fluid from this cyst weighed 54 lbs., the tumor and sac, 20 lbs., a total of 74 lbs.

I have previously removed a 40 lb. cyst, a 50 lb. cyst and a 60 lb. cyst under local anesthesia, all the patients recovering.

DISCUSSION

Leo Bloch, Louisville: In these modern days, when surgical lesions are ordinarily subjected to prompt treatment, it is very unusual to encounter an ovarian cyst weighing seventy-four pounds. Dr. Allen is to be congratulated upon his successful removal of the tumor under local anesthesia.

In view of the long duration of the case reported, the question arises whether the tumor was of such type that there will be recurrence after the operation. I recently removed a large ovarian cyst from a woman aged fifty-two, and much to my surprise within three months she returned with malignant disease of abdominal viscera. There were numerous nodules scattered throughout the cavity. The woman died a few months afterward of a malignant disease. My experience has been that ovarian tumors which have been a long time in developing are prone to recur in the form of malignant growths.

W. Edgar Fallis, Louisville: Having been an assistant to Dr. Allen for ten years, I want to say that I have seen him successfully remove a number of ovarian tumors under local anesthesia. I am not associated with him now, but happened to be present when he removed the seventy-four pound ovarian cyst which he has exhibited.

There are two important things to remember in local anesthesia: First, the tissues must be well infiltrated with the anesthetic; second, the patient must be made to understand the difference between "feeling" and "actual pain." The patient, as a matter of course, is certain to feel some of the operative work, but if the local anesthetic is properly used there is no pain. Dr. Allen is an expert in this line of work. An important feature is to allow sufficient time to elapse after introduction of the anesthetic before incising the tissues.

Two days before Dr. Allen operated upon his patient, in the same hospital, I removed an ovarian cyst under local anesthesia, it contained four and a half gallons of fluid and the solid portion of the tumor weighed twenty-three pounds making a total of fifty-five pounds. The patient made a satisfactory recovery. The tumor was malignant in type, as was the one which Dr. Allen removed. I take it for granted that in

cases such as Dr. Bloch mentioned recurrence is due to transplants from leakage of the cystic fluid. In Dr. Allen's case, and also in the one I have described, there is no fear of recurrence, as to transplants were scattered over the peritoneal cavity.

Every one who is practicing general surgery ought to take the time to acquire the requisite skill necessary to successfully perform both major and minor operations under local anesthesia. It teaches one how to handle the tissues with that degree of delicacy necessary to prevent discomfort to the patient; it teaches one many of the finer points in surgical technique; it teaches one how to avoid operative trauma to the structures or organs being manipulated. Occasionally these important features are neglected in the surgeon's haste to complete his operative steps with the patient under the influence of a general anesthetic.

Frank P. Strickler, Louisville: Dr. Allen is to be congratulated on the outcome of this case. However, a cyst of the ovary of this type usually has a pedicle which is not so large and easily infiltrated which facilitates its removal. This cyst also seems to have had very few adhesions, which made it easier on the patient to remove. In my experience, local anesthesia can be used for any abdominal operation; handling of the viscera does not produce pain, but traction on viscera during the operative procedure does cause pain.

I have been accustomed to use a different preliminary preparation than that mentioned by Dr. Allen. The night before operation I give the patient at bedtime fifteen grains of veronal. The next morning one hour before the operation, I give the patient hypodermically, 1-150 to 1-200 gr. of scopolamine with 1-4 grain of morphine. I have to date had excellent results with the above method. The patients are comfortable, and will usually sleep through a greater portion of the operation. I use 1-2 of one per cent of novocaine with adrenalin, injecting at the site of operation, or doing a nerve block at a distance from the operative field. I find that paravertebral blocking of the dorsal and lumbar nerves gives good results, and I have also used both sacral and splanchnic anesthesia with good results.

In some cases it may be necessary to use a combination of the above mentioned methods. I find that I can do practically any abdominal operation under local anesthesia without discomfort to the patient by carefully avoiding mauling and traction on the viscera, thoroughly infiltrating with novocain and adrenalin the operative field, and giving time for anesthesia to be produced. It does require more time, and a little more skill for good local anesthesia work.

Harry A. Davidson, Louisville: There is one question I would like to ask: Supposing Dr.

Allen had found numerous adhesions between the intestine and the intra-abdominal viscera, as Dr. Strickler has suggested, would he have been able to complete the operation under local anesthesia alone? Would it have been possible for him to separate dense visceral adhesions under local anesthesia without causing great discomfort to his patient?

E. S. Allen, (In closing): Upon opening the specimen I find it is a multilocular cyst, the type commonly known as a papillomatous cyst, there being many solid areas in it. Recurrence in this type of tumors is possible, and happens from transplantation of the papillomatous cells by leakage from the cyst into the abdominal cavity. In this case the cyst was removed without rupture, there was no leakage, and consequently there is little likelihood of recurrence from proliferation of the papillomatous cells. The interior of the cyst shows several sponge-like masses. Had perforation of the cyst occurred, as not infrequently happens, there would have been transplantation of the cellular elements and recurrence of the growth within the cavity. That is the only way in which recurrence can happen in tumors of this type.

As to adhesions: It has been my experience that **visceral and intestinal** adhesions can be separated just as easily under local as under general anesthesia. The patient suffers no pain or discomfort during the procedure unless undue traction is exerted upon the mesentery. In cases of the fifty pound ovarian cyst which I mentioned having removed under local anesthesia, the transverse colon was adherent across the tumor, and the tumor itself was adhering to the parietal peritoneum. The patient complained of no pain or discomfort during the operation. We were careful to make no traction on the mesentery or parietal peritoneum; that is the cause of pain in such cases.

Occasionally there is some complaint of pain when the cyst is delivered because of traction on the broad ligament. This can be obviated by infiltrating the broad ligament with the anesthetic fluid. When that is carefully done the patient complains of no further pain. Sometimes the broad ligament is greatly thickened and time must be allowed for the anesthetic to take effect before making traction or dividing the tissues.

I recently repaired a large post-operative ventral hernia under local anesthesia. The hypogastric nerve was blocked and the patient suffered no pain during the operation. There is hardly an operation in major surgery that cannot be successfully performed under local anesthesia if one is careful to block the nerve trunks in the area involved. Local infiltration of the mesentery, broad ligament, etc., permits the handling of the tissues without discomfort to the patient.

It must be remembered, however, that some people are not suitable subjects for local anesthesia. I recall a very large woman who had a ventral hernia which required operative treatment. Her physical status was such that we considered a general anesthetic hazardous, and concluded it would be safer to repair the hernia under local anesthesia. The patient was placed on the operating table, and while preparing for the necessary steps, I simply passed my finger across the abdomen asking her if it caused any pain. She screamed with pain and restraint was necessary to prevent her "jumping off the operating table." It is useless to attempt local anesthesia in that type of patient. In this case the ventral hernia was repaired under general anesthesia without untoward incident followed by complete recovery.

HEREDITARY SYPHILIS TRACED THROUGH FOUR GENERATIONS: CASE REPORT.*

By CURRAN POPE, Louisville.

To those who have tried to trace genealogies where only good, brilliant and useful data are sought, it is not necessary to speak of the difficulties attendant upon such a pleasant undertaking. When one steps over the line into pathology, the shady side of physiology, and particularly a pathology that seeks the dread and much tabooed syphilis, the task is made much more difficult. But even this is enhanced when the particular form of lues, of which information is sought, attacks the central nervous system and its vascular supply leaving in its track wreckage of mind and nerve tissue.

People are normally reticent about their inheritable diseases, and this will continue to be the case until the population ceases to regard the disease—syphilis—from its "moral" standpoint and views it simply as a disease. Education of its importance to the physician, and especially to the neurologist and medical internist, will do much to overcome this, just as cancer education has already caused the people of this country to cease speaking of their cancer dead and cancer afflicted, in hushed tones and bated breath.

This case has been carefully studied. The patient shows enough leucic stigmata to make one reasonably certain of its heritability. Months have been spent in getting this data and so far as one can be certain it is correct. In some instances medical attendants of the individuals were still living and knew positively of the presence of the disease and of the progenital inheritance. In this way the data has been gradually accumulated and is

believed to be reasonably accurate.

The subject of this report was first seen in June, 1915. A male, aged twenty-one years, height 5 feet, 8 inches, weight 142 pounds, medium heavy build; a brunette; nutrition good, was a teetotaler; auto-erotic; had no venereal diseases; did not use drugs but smoked a pipe excessively.

Personal history: Measles, mumps, chicken-pox, pneumonia; had been vaccinated for smallpox and typhoid fever; influenza in 1920.

The family history as given when first seen was free from insanity, but patient finally admitted one grandfather was insane and that a maternal grandmother died of tuberculosis.

The patient was delicate as a baby, had frequent colds (possibly "snuffles"), but finally grew and developed well. He began school at the age of six and progressed normally; attended college one year. At the age of nineteen he entered business and was holding a position of fairly good trust. He had ceased auto-eroticism, but was troubled with nocturnal seminal emissions.

General organic conditions: Wassermann and cobra venom tests negative. He had many neurotic and psycho-neurotic symptoms, including a marked casque cencephalique, cardiac and gastro-intestinal symptoms. He had an active dream life and was troubled with insomnia. There was marked prostatovesiculo-crestic hyperthrisism with introspective and morbid ideation. The genitals internally and externally showed this. He was psychically clear, with no evidences of mental involvement other than the neurasthenico-psycho-neurotic morbidity. The pupils were slightly irregular, sluggish, and the right barely larger than the left. Reflexes markedly exaggerated; no motor or sensory loss; retinæ negative.

COMMENT.

1. A teetotaler—less likely to acquire lues.
2. Auto-erotic—"no chance for disease,"—although it is well-known that extra-genital syphilis is frequent.
3. His "nervous exhaustion" at that time constituted the neurasthenia vera of Freud, being built on an auto-erotic basis with many seminal emissions, often twice a night.
4. Poor record of the family history at this time.

5. Failure on my part to interpret the pupillary hint and to search for stigma of lues.

Diagnosis: Neurasthenia vera; mild compulsion neurosis with psychotic symptoms; prostatovesiculo-crestitis. No treatment for lues. The patient made a complete recovery; returned to business, was successful and had made a fair competence by the time of second examination. Duration of treatment ten

*Read before the Jefferson County Medical Society.

weeks. Again seen three months later, treated and observed for two weeks. Pronounced in excellent condition and dismissed.

The patient was seen again in January, 1924. He had been in excellent condition until one year ago. Was in three businesses and managing a large farm; was worried, at age twenty-three, he married; has three children. For the first two or three years his home life was satisfactory; now much marital infelicity produced by the distaff side of the house. Has three children born normally at term. Has become nervous, restless, trembly, morbid, introspective and tends to argumentative positions. Slight exaggeration of the ego, especially his "wonderful" business capacity. At the present time examination shows:

1. Pupils: A plainly marked inequality; right larger than left; sluggish; questionable "dead man's eyes;" irregularity; fundi show veins and arteries large and tortuous; optic discs negative.

2. Reflexes: superficial active; knee jerks, right and left, present and active; ankle jerks same; elbow and wrists equal and quick.

3. Stigmata: presence of scaphoid scapula; now teeth noticed to have slight notching; tibial crests irregular.

5. Neurasthenoid and psycho-neurotic symptoms are present as at the previous examination, save that depression has given way to its opposite, an egotistical attitude ranging to a suggestion of grandiosity.

6. Foci of infection in teeth, tonsils, prostate, seminal vesicles, urethra and colon; examination reveals plasmodium malarie and hookworms.

7. Blood Wassermann positive, spinal fluid negative.

8. Patient very difficult to handle until told nature of suspected disease.

9. In eight weeks under intensive treatment for his neurosis, psycho-neurosis, lues and general bodily state, by rest, diet, antiluetic medication, by hydrotherapy, massage, electrotherapy, etc., was greatly improved and despite advice to the contrary discontinued treatment. In four weeks relapsed. Then returned with some facts concerning family history which greatly worried him. After three months treatment is seemingly well.

10. Patient cautioned that he must receive semi-annual treatments for lues for a number of years to come.

Diagnosis: hereditary lues, plus former findings.

COMMENT ON SECOND PERIOD.

1. The patient remained specifically well until his resistance was lowered by marital, business and physical strain.

2. Symptoms have become plainer after the passage of nine years.

3. Now lead to investigation that makes diagnosis plain.

4. Blood Wassermann positive; spinal fluid **negative**.

5. Patient difficult to handle because of his ego.

6. Family history secured.

FAMILY HISTORY.

GREAT GRANDFATHER.

(known syphilitic)

Died "about" age 50, of vascular disease. "Heart disease and apoplexy."

GRANDFATHER.

(known syphilitic)

Died "about 60" of "heart disease."

FATHER.

Admitted to patient (son) he had had "the pox," which he "got" from his grandfather. His father, patient's grandfather, told him the great grandfather had a bad (i.e., malignant) case of syphilis.

HAD THREE SONS AND THREE DAUGHTERS.

It is not known as to whether the mother has ever had syphilis as up to this writing no physical or seral tests have been made.

OF THE SONS.

1. Father (of patient) sustained four "strokes" and became "blind"—(optic atrophy.)

2. Uncle (of patient): stroke, followed by paralysis; unmarried.

3. Uncle (of patient): stroke, followed by paralysis; unmarried.

4. Uncle (of patient): stroke, followed by paralysis; unmarried.

5. Uncle (of patient): stroke, followed by paralysis; 4 children. All of these died before the age of 40 years.

OF THE DAUGHTERS.

1. Aunt (of patient): stroke "and died very young."

2. Aunt (of patient): stroke, followed by paralysis; no issue; died "in forties."

3. Aunt (of patient): no information, cause of death unknown.

ONE PATERNAL UNCLE BEGOT FOUR DAUGHTERS.

Of the Daughters.

1. Died in hospital for the insane.

2. Died in hospital for the insane.

3. Died in hospital for the insane.

4. Now confined in hospital for insane; cause "believed to be syphilis."

1. Great grandfather: The grandfather, according to a physician, stated "his father had a severe case of pox from which he never recovered completely and died at about fifty years of heart disease and apoplexy."

2. Grandfather: Positively known by living physician—who died one year ago—to have had syphilis which was inherited.

3. Father living at time of research and who has since died stated to patient, corroborated by family physician, that he knew he had inherited syphilis from his father (patient's grandfather.)

4. Note that the family all have died of or have neuro-vascular lesions. This raises the question as to variation or strains of the spirochete. Is the long, thin, narrow spirochete neurotropic? Is the short, heavy spirochete skin, mucous membrane and organotropic? Does a severe exanthema develop antibodies and protect or immunize the individual?

5. Will the crop of neural lesions increase with the present method of treatment of acute syphilis where an endeavor is made to immediately sterilize the body by chemotherapy instead of allowing the body to protect itself by an immunizing process?

6. Will the negro race, practically all of whom suffered from muco-cutaneous lesions and who so rarely had any neural or neuro-organic diseases, now find that he has "taken up the white man's burden," and have tabes, cerebro-vascular diseases and paresis?

7. This case and history are illuminating to me, and I close by quoting that "the sins of the father (or mother) are visited upon the children even unto the fourth generation."

DISCUSSION

E. R. Palmer, Louisville: I do not like to have to take exception to both Dr. Pope and his biblical quotation, but shall have to do so nevertheless. Although the sins of the mother are visited upon the children even unto the third and fourth generations, I do not believe that the sins of the father are. In his report Dr. Pope has given us simply the paternal side, and although it was believed for a long time that syphilis was transmitted to the offspring by the paternal element, yet the latest investigations seem to have proven what I have always believed to be true, that is that syphilis is never transmitted directly to the child by the father, and that a child born syphilitic gets its syphilis not by inheritance but by infection from the mother. I am aware that Robert W. Taylor and many other older authorities claimed that syphilis was transmitted to the second, third, and possibly the fourth generation. May be it is. I must confess that I have had practically no experience with so-called he-

reditary syphilis, because my patients are all adult males; but it looks improbable to me that the disease can remain active enough to pass through four different strains of women—and this must be taken into consideration—without there having been reinfection on the male side to account for it. I believe it is extremely rare for syphilis to ever go beyond the second generation. It is always to my mind an infection. Syphilis that has been going through four generations, it seems to me, must become so attenuated that by the time it reaches the fourth generation there would be very little of it left.

Curran Pope, (In closing): It is significant that only one member of the family in the case I have reported had issue, and that was a paternal uncle; it is an interesting fact. I have many case records more carefully investigated and tabulated, in which all the living people have been examined physically and tested by the Wassermann reaction. I have spent months, and in one family four years, obtaining and compiling the data. It was my intention to present the report of that family at this meeting, but lack of time prevented.

It is an interesting fact that most of us, as neurologists, are very suspicious of neuro-vascular syphilis when an individual has what is known as a "stroke" early in life. In the family of the patient who furnished the subject of my report tonight, all the members died before the age of forty years; all of them followed a certain type; all of them (men and women) were known, or reasonably believed, to have had syphilis by the physicians who attended them; by that I mean that it was, so far as could be determined, not acquired syphilis.

In my particular patient anyone who made a careful physical examination would be suspicious of hereditary syphilis, because he had physical manifestations that are supposed to attend or be a part of inherited syphilis: for example, the notched teeth, the scaphoid scapula, pupillary and tibial irregularities, etc. Of course, no one can be certain of such family histories, but we have in this case the right to believe the facts are reasonably correct. In New Orleans the French oftentimes, when they purchase their marketing ask the storekeeper to "throw in a little extra." They call that a lan yap. The quotation at the close of my report to which Dr. Palmer takes exception, was a little lan yap on my part!

ACUTE GLAUCOMA; CASE REPORT.*

By J. J. WYNN, Louisville.

Mrs. J. H., widow, aged 68, was taken with an acute attack of violent pain in the right eye on the night of January 26, 1923. During the preceding ten days to two weeks she had been in bed with a mild case of influenza, although at the present time her temperature was normal. Several days preceding she had noticed a slight fogging of vision, but there had been no other premonitory symptoms, no colored rings around the lights, nor pain in the eye.

The attack came on suddenly with intense nausea and vomiting, the eyeball became congested and very painful; vision rapidly reduced and the pain radiated over the entire scalp.

When seen early that morning the eyeball was congested, cornea cloudy, and opaque, pupil dilated and oval, anterior chamber shallow, vision reduced to motion and the tension 3 plus by finger palpation.

A diagnosis of acute inflammatory glaucoma was made and eserine 1-4 per cent solution was ordered, two drops in eye every half hour. Hot compresses to the eye and a saline given for elimination. This was continued for a period of four hours when she was again examined, at which time there was no change in her condition. The eyeball was congested, the pupil dilated and oval, cornea cloudy, vision still limited to motion, and the eyeball as hard as a stone. She was taken to the hospital for an iridectomy which was done at once under local anesthesia.

The following morning she reported having had a good night with the nausea and vomiting, as well as the pain in the eye and head, entirely gone and she was feeling very much better. The cornea had become clear and her vision returned. The following day the wound was closed, anterior chamber reformed and she was allowed to go home. Eserine solution three times a day was continued.

February 5, she reported for another examination at which time cornea was clear, tension normal, vision 8-200 corrected to 20-100 with a plus 5 D's. Retina swollen and edematous in places and some small hemorrhages near the macula. Eserine was continued with hot applications and massage of the eyeball through the closed lids twice a day.

On February 28 she again reported as feeling all right. No pain or inflammation in eye, tension normal, vision 20-50 with plus 4 D's. No retinal or optic nerve changes, and her eye remained in good condition until her death about ten months later, due to cardiovascular disease.

This case is reported as a typical one of acute glaucoma. We have a woman 68 years old with cardio-vascular degeneration having a mild attack of influenza which is followed by acute glaucoma. According to Elliott glaucoma occurs very often after acute febrile diseases, especially influenza, and when we have associated cardio-vascular degeneration, in fact "a sick eye in a sick body."

Another contributing factor in this case is the high degree of hyperopia (4D), for it is known that 60 or 70 per cent of cases of acute glaucoma are hyperopic. We did not have the usual prodromal symptoms except the slight blurring of vision, preceding this attack, but it may be that the colored rings around the lights, and pain in the eye and head were not noticed because of the influenza. The attack was ushered in with the usual nausea and vomiting followed by severe pain in the eye and head with congestion of the eyeball, cloudy, steamy cornea, dilated pupil, shallow anterior chamber, cloudy vision, and stony hardness of the eyeball. Had this condition not been recognized promptly and the proper treatment instituted the vision would undoubtedly have been permanently destroyed.

The greatest difficulty is to differentiate this disease from acute iritis which as a rule develops in early adult life, comes on gradually, secondary to some focal infection or constitutional disease as tuberculosis, syphilis, gonorrhea, or rheumatic fever. The pupil is contracted and rapidly becomes adherent to the underlying lens, aqueous cloudy with deposits on the anterior surface of lens or posterior surface of the cornea. Pain, inflammation and congestion of the eyeball is about the same in both diseases, as is the reduction of vision, but the tension is not increased except in rare cases, then only slightly.

The treatment of iritis is exactly opposite to that of glaucoma; a mydriatic is always used in iritis, whereas it would be disastrous to use one in a case of glaucoma.

DISCUSSION

S. G. Dabney, Louisville: I have seen a few cases of acute glaucoma following influenza. A mistake the general practitioner is sometimes likely to make is to confound glaucoma with violent sick headache. I have known that to occur on two occasions; both of the physicians are now dead; one of them was a particularly able diagnostician and the other an experienced physician; both mistook the symptoms of glaucoma for sick headache. I think it should be emphasized that the manifestations of glaucoma are not confined to the eye. It is not uncommon for the patient to have violent headache—a genuine hemiparesis—vomiting is often distressing, and in both glaucoma and "sick headache" there are eye symptoms.

*Read before the Jefferson County Medical Society.

Dr. Wynn said nothing about the blood pressure of his patient or the urinalysis, if such examinations were made. I think this should be done as a rule.

In regard to treatment: I am wondering a little why Dr. Wynn operated under local anesthesia. The general custom is, in acute glaucoma, to administer a general anesthetic. Local anesthesia is not usually satisfactory. I am under the impression that a general anesthetic is indicated for iridectomy in the majority of cases of acute glaucoma.

Gaylord C. Hall, Louisville: In giving local anesthesia I understand Dr. Wynn preceded it with a liberal dose of morphine. I imagine the morphine very materially assisted the effect of the cocaine. I rather agree with the previous speaker that it is much safer in acute inflammatory glaucoma to use a general anesthetic.

I want to commend one point made by Dr. Wynn is the aftertreatment of this case, and that is systematic massage of the eyeball. I think that does a great deal of good. I recall several cases of this kind where the tension was very high, and the tension was materially reduced by carefully applied massage. I have taught a number of people to administer this form of treatment themselves or to have some member of the family do so. I believe it is a very valuable adjunct to the after-treatment of these cases.

Adolph O. Pfingst, Louisville: Glaucoma is one of the problems of the ophthalmologists. We can readily understand why this is so when we consider the obscure pathology in this disease. It is true that we have two characteristic histological changes common to nearly every case of glaucoma in the obliteration of Fontana's spaces at the angle formed by the iris and the cornea and in the cupping of the optic disc. It is perhaps conclusive that the cupping of the disc is the result of glaucomatous pressure but when we consider the pathology at the filtration angle of the iris we are at sea, whether these changes are primary and hence are the cause of glaucoma or whether they are secondary to some other pathology. The chief trouble in the study of the pathology of glaucoma is and always has been the inability to obtain specimens removed during the early stages of the disease. A few eyes presenting the early stage of glaucoma were obtained accidentally in patients who had died of some intercurrent affections. In these eyes a marked infiltration of the ciliary body and iris with leucocytes and a pushing forward of the iris and ciliary body was noted. Perhaps it is the pushing forward of the iris which has to do with the subsequent closure of Fontana's spaces or perhaps these spaces become obliterated through a inflammatory process. Just why this inflammatory condition of the uveal tract comes on is the problem of which I spoke. Personally, I am inclined to believe that the cause is hematogenous

—that toxic elements from remote parts of the body reach the eyes and start the inflammatory reaction. It has been pointed out tonight that acute fibrile diseases, such as influenza, typhoid, etc., are followed by acute glaucoma. We believe too, that it may have its exciting cause in auto intoxication from the bowel. I might further say that sanguine individuals are more prone to glaucoma than the phlegmatic, a fact which no doubt accounts for the great relative frequency of glaucoma in the Jewish race.

Regarding the treatment of acute glaucoma, I am a firm believer in an early iridectomy. I had the necessity for this impressed upon me early in my practice when I saw a case of acute glaucoma and deferred the operation for twenty-four hours. I had a perfect surgical result but vision was lost for we were dealing with the type of case called fulminating glaucoma. While these cases are not common I begin the installation of myotics at once and operation performed as soon as it can be arranged for. I operate these cases always under a general anesthetic as cocaine has no anesthetic affect in hard eyes, hence operations without a general anesthetic are extremely difficult.

Claude T. Wolfe, Louisville: Just a few words in regard to the early management of glaucoma: In every case of glaucoma, acute inflammatory or fulminating in type, tension is markedly increased and unless promptly relieved vision is usually lost. I believe these cases should be operated upon under general anesthesia. In the milder types in which it is the intention to use local anesthesia, knowing that cocaine does not effect the degree of anesthesia desired, I have been using the following combination: eserine 1-10 per cent, cocaine 2 per cent, pilocarpine solution 1 1-2 per cent. This seems to reduce tension much more rapidly and readily than any other myotic I have employed and I now use this combination in all acute inflammatory cases before operation.

As to the surgical treatment of acute glaucoma: I think it is universally agreed that iridectomy in the acute inflammatory type of glaucoma is the operation of choice.

J. J. Wynn, (In closing): I want to thank the gentlemen for their discussion. The question of a general anesthetic was considered in this case, but we decided to use local anesthesia because of the patient's general condition. She was a cardio-vascular subject with arteriosclerosis and high arterial pressure. For these reasons a general anesthetic would have been hazardous. The concaine was preceded by a liberal dose of morphine. After making the section more cocaine was instilled and iridectomy easily completed. Massage of the eyeball after the operation I think helps a great deal in all cases of glaucoma.

SEVERE ANAPHYLACTOID REACTION FOLLOWING THE ADMINISTRATION OF ANTI-RABIC VACCINE.*

By M. Y. MARSHALL, Henderson.

The impression appears to be rather general that the prophylactic administration of anti-rabic vaccine is a perfectly safe procedure, and this is certainly the idea which the manufacturers of this product attempt to convey to the profession, both by way of its literature and their detail men. Reports of any untoward results following the use of this vaccine are meager, to say the least, in medical literature, and although I have no wish to discourage the use of a very valuable remedy, I feel that such cases as this should be put on record. The case is also of interest as possibly having some bearing on the question, discussed considerably of late, as to the anaphylactic nature of the symptom complex known as Scarlet Fever.

The patient was a young white woman, 21 years old, unmarried and with nothing of importance in her medical history. She was slightly bitten or scratched by her dog, which died a few days after with what the veterinary surgeon pronounced to be rabies. She was started on the daily injections of anti-rabic vaccine, and fourteen doses administered subcutaneously, in the abdominal wall. The day following the fourteenth dose there was a local reaction at the site of the last injection, consisting of swelling, redness and extreme tenderness. The injection due for that day was not given, and by the next day she was confined to her bed with a temperature of 102 degrees F., and a very severe headache. By the following day she presented a picture which clinically resembled Scarlet Fever very closely. Her temperature was 103.5 degrees F., the severe headache continued, prostration was pronounced, and there was present a generalized scarlatiniform eruption. A typical white zone around the mouth and a strawberry tongue increased the resemblance of the picture to Scarlet Fever. There was no sore throat and no albuminuria at any time. The high fever continued for about four days, then fell to normal rather suddenly. During this time, however, the patient was desperately ill, and a fatal outcome did not appear to be very improbable. Dyspnea, probably due to edema of the glottis, was a rather alarming symptom.

The local reaction remained pronounced, but during the period of the general reaction, was overshadowed by the latter. About a week after the disappearance of the general reaction, which left the patient in an extremely weakened condition, it became evident that fluctuation was present at the site

of the local reaction, and about two ounces of a sterile purulent fluid were evacuated. This was evidently an area of local necrosis, and not an abscess due to pyogenic bacteria. This area drained for about a month, and eventually healed. There was a pronounced desquamation following the subsidence of the eruption.

There was some discussion among the physicians who saw the case as to whether it was a reaction from the foreign protein in the vaccine, or really was a case of scarlet fever. The absence of any other cases of scarlet fever, the absence of sore throat and albuminuria, and the relatively short duration of the high fever, as well as the evident connection with the vaccine treatment and the local reaction, all tend away from the diagnosis of scarlet fever. The close resemblance of the clinical picture, however, to scarlet fever could, it appears to me, be advanced as evidence that the latter disease is essentially an anaphylactic reaction to some foreign protein, probably originating in the accompanying tonsillitis and pharyngitis, and I submit the evidence for what it is worth.

VON JAKSCH'S INFANTILE ANEMIA.*

By JAMES W. BRUCE, Louisville.

The following case of infantile anemia has been under observation for seven months. The baby is the fifth child of normal parents, the other four being healthy and normal. There is no family history of tuberculosis or syphilis. Blood Wassermann tests negative on both father and mother. The child was rosy and apparently normal when born; it was a precipitate labor.

For the first two months the baby was breast fed. It then appeared to be anemic, was not gaining properly, and the physician decided to feed it Eagle Brand condensed milk. It was about that time he discovered the child had an enlarged spleen. Eagle brand condensed milk was given probably for a month, later whole milk, cultured milk, etc.

I first saw the child when it was five months old; it then weighed just eight pounds. There had never been any gastro-intestinal disturbances; the child took its food regularly and seemed to digest it well. There had been several rather severe attacks of bronchitis. At my first examination the child presented a typical picture of atrophy, the skin being wrinkled, dry, and the tissues dehydrated. The baby then had an acute attack of bronchitis. There was a loud systolic murmur over the precordium suggesting a congenital heart lesion, but roentgen-ray examination showed the heart normal in size. The spleen was very hard and extended almost to the midline and to the iliac crest.

*Read before the Henderson County Medical Society.

*Read before the Louisville Medico-Chirurgical Society.

The first thing we did was to give the child iron-containing foods. At the age of five months about the only iron containing foods are beef juices and strained vegetable juices, and these were administered. We also gave three-fourths grain of citrate of iron by intramuscular injection twice a week; it received twelve injections altogether. Cultured milk was given properly diluted according to age.

After about three weeks treatment, there being no improvement except recovery from the bronchitis, we began blood transfusion. The first transfusion was 45 cc. of the father's blood intra-peritoneally. We did not like that method very much and afterward used the intravenous route, (superior longitudinal sinus). At that time the blood count showed: Erythrocytes 2,440,000, hemoglobin 35 per cent, leucocytes 48,000, polymorphonuclears 30 per cent, mononuclears 65 per cent, eosinophiles none, basophiles 3 per cent, transitionals 2 per cent. Of course, we thought of leukemia, but the child really presented a typical picture of infantile anemia or von Jaksh's disease. The most characteristic features about this disease are: it occurs in children less than one year of age, there is marked anemia of the secondary type, a high leucocyte count, and markedly enlarged spleen. This baby had all four of these signs. The Wassermann reaction was negative; skin test with Koch's old tuberculin 1 mg. intra-dermal negative; urine negative.

Blood transfusions were continued. We used 45 cc. as I happened to have a 50 cc. syringe. Perhaps larger amounts might have had better effect. Between April 4th and July 28th the child received fourteen transfusions of 45 cc. each. These were given in groups of three or four once or twice a week, then we waited a month to see what happened.

At first the child's condition seemed to improve considerably. Blood count: erythrocytes 3,250,000, hemoglobin 45 per cent, leucocytes 18,000. Then there occurred another attack of bronchitis and the blood picture showed: erythrocytes 1,400,000, hemoglobin 30 per cent. At this time it occurred to me that possibly the erythrocytes were being destroyed in the enlarged spleen as fast as we were introducing them. When transfusions were made at short intervals, the condition would improve, then the spleen would apparently disintegrate the erythrocytes and the child would get worse. Splenectomy was out of the question because of the child's age and weakened condition. The case was then referred to Dr. C. D. Enfield who made two applications of radium over the spleen. Within forty-five days, from being a spleen that almost reached the midline and iliac crest, it became barely palpable.

The last blood count was made July 28, after the child had received fourteen transfusions, and showed: erythrocytes 3,008,000, leucocyte count and hemoglobin test not made. When the baby was ten months old it weighed sixteen pounds. We then began giving yolk of raw egg with each feeding. The child is now one year old and weighs twenty pounds. It is healthy in appearance but rather pale. It has not been given a transfusion for two months. It stands alone holding to a chair and has 6 teeth.

The idea of giving small transfusions at frequent intervals was to stimulate the bone marrow rather than to introduce the actual number of erythrocytes necessary. I have talked with several pediatricians about the case and they all said possibly larger transfusions, say 90 to 100 cc. might have been better; but we are satisfied with the results secured by the use of smaller amounts. I believe it is usually considered that 10 cc. to the pound of body weight is the proper amount for transfusion. We gave only half that quantity but the transfusions were made very frequently.

DISCUSSION

B. W. Bayless, Louisville: It is well known that the effect of the roetgen-ray and radium are similar. With radium the so-called gamma or hard rays are used. Both agents will soften fibrous tissue to a certain extent. This is especially true in keloid formations and scar tissue from any other cause. In the enlarged spleen of the type mentioned by Dr. Bruce there is evidently not very much fibrous tissue, and it is somewhat difficult to explain the action of radium or the roentgen-ray. However, it is a fact that after a few applications of either agent the spleen will be reduced practically to its normal size.

In the case reported, as Dr. Bruce has suggested, the application of radium had the effect of reducing the size of the spleen and probably regulated its function, so that after being reduced in size it no longer destroyed the erythrocytes.

Leon K. Baldauf, Louisville: The case reported by Dr. Bruce seems typical of von Jaksh's disease. In Dr. Bruce's case the blood Wassermann was negative.

I have in mind another case which is in some respects similar. I have always been impressed with the fact that Banti's disease in the adult resembled von Jaksh's anemia rather closely. The patient is a man who has been under observation for two years. About once a year he would have a terrific hemorrhage from the mouth and the attending physician suspected malignancy. It was thought the hemorrhage came from the stomach, but it was later discovered that it was from the esophageal vein. Following the last hemorrhage careful physical examination disclosed an enlarged spleen. We

now believe this is a case of Banti's disease which is apparently somewhat similar to von Jaksch's anemia noted in infants.

James W. Bruce, (In closing): In regard to anemia: During the time there was so little response to blood transfusions we thought this might be a case of splastic anemia; but as Dr. Dowden has said, all patients having this disease die. In this case the baby is still living and appears to be in good health; it has gained in weight and looks normal, so it cannot be a case of aplastic anemia.

As to the character of the erythrocytes: It is a fact there were not many nucleated cells found, not as many as we had hoped to see.

TRAUMATIC RUPTURE OF SPLEEN: SPLENECTOMY.*

By L. WALLACE FRANK, Louisville.

Unfortunately I could not attend the last meeting and therefore did not hear Dr. Sherrill's paper on splenectomy, but last Sunday afternoon (January 18, 1924), I had occasion to perform such an operation and thought it might be of interest to report the case at this time.

In an article on surgery of the spleen, written in 1913, Bland Sutton states that splenectomy is justifiable following injuries, in enlarged and floating spleen, where the organ is involved in malignancy or cystic disease, in certain types of anemia and Banti's disease, in the presence of abscesses, and also where the spleen is secondarily involved in other neoplasms where during removal of the growth it is necessary to sacrifice the spleen. He mentions a case reported in 1581 by Vriar. The first splenectomy was performed in a case where the spleen prolapsed through an incised wound of the left side. Since Sutton's article one other indication for splenectomy has arisen: i. e.; in purpura hemorrhagica.

The spleen which I exhibit was removed last Sunday from a child aged eight years. The history was that the child had fallen from a second story window about three o'clock the day previously a distance of about twelve feet. There was no mark of violence on the child's abdomen, no abrasion of the skin; she complained of shock from the fall and pain in the abdomen which became progressively worse. The physician who examined her shortly after the accident found very little the matter with her except abdominal tenderness and he advised waiting until evening when he would call again. About three o'clock that morning the child became worse, her pulse

was slightly elevated, definite abdominal muscular rigidity was developing, and she was brought to one of the Louisville hospitals without a positive diagnosis having been made.

I saw the child on her arrival at seven-thirty A. M. She was not very restless, color good, but she seemed apprehensive and complained of pain wherever touched. There was definite muscular rigidity and tenderness seemed to be about the same over the entire abdomen. The parents were informed that while I could not make a positive diagnosis, there was evidently something wrong within the abdomen and it should be opened. On admission the child's temperature was 99 degrees F., pulse ninety, respirations twenty-four. Blood examination showed: hemoglobin 90 per cent, erythrocytes 4,900,000, leucocytes 24,700 with 83 per cent polymorphonuclear cells. We made the diagnosis simply of intra-abdominal injury of some type.

Celiotomy by midline incision disclosed the abdominal cavity filled with blood. The liver region was carefully examined and nothing abnormal found. The blood seemed to be coming from the left side, therefore, we made a transverse incision from the midline extending well over the loin. This exposed the spleen and disclosed a blood vessel in the lower third of the organ which was bleeding freely. The upper third of the splenic surface was glazed and there was very little bleeding from that portion. The child withstood the operation well and is apparently making a nice recovery.

One interesting feature about her convalescence is that the day following the operation her temperature rose to 103 degrees F. Her pulse while on the operating table was 130 and remained at that rate for twenty-four hours. The pulse and temperature are now normal.

Another interesting point in the operative findings is that the outer two-thirds of the pancreas was mobile. Whether that indicates failure of fusion of two layers of the peritoneum, or whether it is an anomaly of development, I am unable to say.

The pedicle of the spleen was very short and in order to prevent injury to the tail of the pancreas we had to resect a portion of the hilum of the spleen and leave it there. These are two rather interesting operative findings.

This is the fourth case of ruptured spleen that I have seen. In this case the diagnosis was not made, but in the three others the diagnosis of splenic rupture or splenic injury was made. Two of them were in children, the other in an adult.

*Read before the Louisville Medico-Chirurgical Society.

It is astonishing to me how slight a blow it takes to cause rupture of the spleen. In the second case I saw the patient, an adult male, was riding in the back seat of an automobile. It was necessary for the driver to swerve to one side suddenly to avoid a collision and this man was thrown against the other side of the car. He complained of pain in his side and the attending physician thought he had a fractured rib and applied adhesive plaster. That was on Sunday. On Monday he was feeling better, and on Tuesday he felt still better. The following day he had an attack of weakness and had to remain in bed for a while. Two days later he was practically in collapse and in talking the matter over with the attending physician we concluded that the patient probably had rupture of the spleen and secondary hemorrhage was the cause of his collapse. He was taken to the hospital, the abdomen was opened, and rupture of the spleen found. No attempt was made to remove the spleen on account of the difficulty of doing so and the fact that the patient was not in very good shape. In this case the wound was packed and the hemorrhage effectively controlled. The patient was in fair condition until we turned him over on the operating table preparatory to taking him to his room. He died about an hour later. He was a man weighing about two hundred and eighty pounds.

While in injuries of the spleen, packing may successfully control bleeding, I believe that in every case of splenic rupture splenectomy should be performed if at all possible.

DISCUSSION

John W. Price, Louisville: Acute traumatic rupture of the spleen calls for immediate decision and, to my mind, immediate operation. I think every patient with splenic rupture should be operated upon immediately and splenectomy is the procedure of choice.

Morris Flexner, Louisville: There are several interesting phases in the case reported. It is quite unusual for a child whose abdominal cavity is filled with blood to show over 4,000,000 erythrocytes to the cubic millimeter. Leucocytosis was marked and the hemorrhage into the peritoneal cavity would account for that.

The size of the spleen is also of interest. If the case had occurred anywhere else than in Louisville, we might think of malaria; but real malaria is very rare here. Rupture of a malarial spleen is large and its substance so changed that it does not take much of an injury to cause rupture.

The post-operative rise in temperature described is not unusual after splenectomy. I read a paper before the Kentucky State Medical Association recently on purpura hemorrhagica which is another one of the indications for

splenectomy. On investigating the literature I found that Cohn and Lemann (Surgery, Gynecology & Obstetrics, May, 1924) report a case of splenectomy for purpura hemorrhagica in which they mention that post-operative rise in temperature is very common.

J. Garland Sherrill, Louisville: This is an extremely interesting case because of the fact that the mortality after rupture of the spleen is very high. Dr. Frank did not operate upon his patient until several hours after the accident, therefore, we are forced to congratulate him on his successful result. My experience is in accord with the statement of Dr. Frank and Dr. Price, that the best treatment for an injury of this kind involving any material portion of the spleen is excision. The reason for this is that the splenic tissue is extremely fragile and ligatures cut through it readily. While in some cases where the bleeding is not free you may be able to control the hemorrhage by packing, this is an uncertain measure at best and when the packing is removed it is exceedingly likely that a fresh hemorrhage will be started, and besides there is the added danger that thrombi may be formed in the small vessels and these may be dislodged by removal of the packing causing the development of embolism. When the spleen is injured to any material extent removal is the method of choice.

The spleen probably has greater power of repair than any other structure in the body. I have seen injury of the spleen from gunshot wound, the stomach being perforated at the same time, where the bullet had cut through a portion of the splenic tissue without destroying it over more than half an inch in depth, and in the course of a few hours this wound was entirely sealed and gave no trouble. Granulation and healing of injuries of the splenic surfaces is very prompt.

It is the present belief that splenectomy does not materially shorten the life of the individual. The procedure is being recommended in many other conditions than splenic injury, and I believe the operation has now established itself as one of the valuable remedial agents in surgery.

Many observers are now recommending that the blood as extravasated into the abdominal cavity in injuries of the spleen be replaced in the vessels by the process of auto-transfusion. To my mind that is not a satisfactory method of treatment. If it is satisfactory in any form of intra-abdominal injury it is in wounds of the spleen. In injuries of the intestine there is too great danger of infection. If it is desired to use the blood for its blood-making function it is just as well to leave it in the abdominal cavity. I do not believe even this is advisable. It is better to remove the blood from the abdominal

cavity because its mere presence may give rise to an inflammatory process which may prejudice recovery. This work was started in Germany and the first reports appeared about two years ago.

It adds something to our surgical knowledge, but in my opinion auto-transfusion of blood in ectopic gestation or splenic injury is not to be advised. This is especially true in ectopic gestation because the oviduct is always infected, and to replace the blood into the vessels is to incur the danger of hemolysis and formation of emboli. The mortality from early operation for ectopic gestation is so low that I do not believe it can be further improved by injecting blood back into the blood vessels.

L. Wallace Frank, (In closing): In the case reported the patient had been given sufficient morphine to obscure the symptoms. It has been my observation that in conditions where there is evidence of concealed hemorrhage, with no blood in the urine, with tenderness at the left costo-vertebral angle, one is safe in making the diagnosis of rupture of the spleen. Another evidence of splenic injury occasionally noted is a very high leucocyte count. It is much higher than can possibly be accounted for by simple peritoneal irritation due to the presence of blood—sometimes as high as 40,000 or 50,000. This is easily explained by the part which the spleen plays in the hematopoietic system and a high leucocyte count when present is an important point in the diagnosis. Our own mortality in splenectomy has been twenty-five per cent. Of four patients operated upon one died while being removed from the operating table.

I agree with Dr. Sherrill and Dr. Price that where rupture of the spleen has occurred the best treatment is splenectomy. As to what effect it has on longevity I am unable to say, although it seems to have been the teaching since remote antiquity that the spleen has no function and may be removed with impunity. It will be recalled that the Roman gladiators in older times had their spleens "burned out," where they developed pain in the left side while wrestling. The history of splenectomy shows that a red hot iron was frequently used to reduce the size of the spleen. Experimental work has demonstrated that no ill effects follow removal of the spleen.

Three of our splenectomized patients are still living. One of them was operated upon more than five years ago. In case splenectomy has been performed the patient usually develops secondary hyperplasia of the bone marrow with changes in many of the hemo-lymph nodes. The hemoglobin in both the other cases was fifty per cent, erythrocytes 2,500,000, and both patients lost a large amount of blood.

In the case reported tonight the upper part of the spleen was glazed and there was no bleeding from that portion. The hemorrhage was entirely from a small section of the spleen, and while there had been considerable bleeding it has practically ceased when the abdomen was opened.

With reference to quick union of the spleen following injury as mentioned by Dr. Sherrill: Bland Sutton cites a case seen in St. Bartholomew Hospital in which a woman had fallen from a second-story window sustaining a femoral fracture and died ten days later. Autopsy disclosed a rupture of the spleen which had completely healed.

REFLEX PAINS ABOUT THE HEAD AND FACE.*

By M. C. BAKER, Louisville.

It is my purpose to discuss reflex pains particularly of eye, ear, nose, and throat origin but if the discussion brings out other sources or causes, it will react to our benefit because no matter what our line of work we are often called upon to interpret and relieve a pain about the head or face; and it is my contention that unless we try to arrive at the cause of that particular pain, we are working along unscientific lines, even though we may relieve the pain.

The first definition in the dictionary for pain is penalty. A reflex pain then is the penalty paid by the nerve endings for some disturbance carried back to some definite location or source. If any classification of reflex pains were made, it would be the old broad classification of acute and chronic.

Among the causes of acute pains about the head and face, we have an acute affection or infection of one or more of the nasal sinuses, a bad wisdom tooth, a stomatitis, or an acute otitis.

By far the most important of all are the accessory sinuses of the nose. Of these the antrum or maxillary sinus is probably the most important as a pain producer.

The pain from this trouble lasts ten days to two weeks, as a rule, its location is not constant and it varies in intensity. Sometimes the tenderness over the cheek and malar bone is the least part of the pain, although this is the classical point for it. The pain most often is referred to the supraorbital region, or the point at the junction of the brow and nose, and oftentimes leads the most expert into believing it is from the frontal sinus rather than the antrum. A third cardinal location is just posterior to the mastoid portion of the temporal bone, and sometimes

*Read before the Jefferson County Medical Society.

makes one suspicious of a mastoiditis, on account of the intensity. Also a severe neuralgic pain in the ear is sometimes noticed with antrum infection. In each case examination will show the external auditory meatus and the drum membrane to be normal in appearance.

Trouble in the frontal sinus gives rise to a severe pain over the internal portion of the brow of the affected side, which later radiates over the area supplied by the supraorbital branch of the trigeminal nerve. If the disease is unchecked, pain may later be experienced over the vertex and temporal region. The intensity of the pain is invariably augmented by stooping, coughing, blowing of nose, sudden turning of head, or any condition that tends to cause congestion of the head. The eye on the affected side is influenced in that the patient cannot look upward, without experiencing a sharp excruciating pain through the eye.

Recently a farmer came to my office stating that he liked to hunt squirrels but since getting this trouble, which proved to be a frontal sinusitis on the side of his shooting eye, he had to give up hunting.

Inflammation of the ethmoid cells, on account of their position, just under the bony wall of the orbit, gives rise first to a dull headache between and back of the eyes, which later changes into an excruciating pain through the eyeballs. Any continued use of the eyes for close work, augments the pain to a great degree.

Pain from the sphenoidal sinus is a little more vague, but as a rule localizes in the parietal and temporal regions, often radiating to one or both ears. The eyeballs are also often tender, as in the case of ethmoiditis.

Leaving the sinuses, the next cause of acute referred pain, we might mention, is a bad wisdom tooth, especially a lower wisdom, whether it is impacted or infected. Such a tooth will cause an acute earache forcing the patient to believe he has an attack of otitis media. Examination of the drum will prove the middle ear to be normal. The pain may continue backward and localize in the mastoid area.

A few months ago a patient in Carrollton, had her husband telephone me to make all arrangements for a mastoid operation, that her family physician advised her to catch the next train. She came immediately to my office for examination. Her pain and tenderness was typical. She could not bear the slightest pressure over the tip of the mastoid or the antrum. Examination of the ear showed the canal and drum normal. An X-ray examination was made of a suspicious lower wisdom tooth on the affected side. This

showed infection and was at once removed. The patient was sent home and in less than a week wrote that her supposed mastoiditis was well.

Another cause of referred pain is an acute stomatitis, or stomach ulcer on the tongue or mucous membrane of the mouth. Oftentimes an ulcer no larger than a pin head will cause excruciating pain in the structures of the neck and the ear on the affected side.

One other cause of acute reflex pains is an acute otitis media. This is particularly true in children. Granted that they cannot locate pain like an adult, yet who can prove that the sympathetic nervous system does not carry the sensation of pain to the very point they complain of? More often than not they complain of the pain being over the forehead, the frontal region, or over the vertex.

Now as to the chronic, or recurrent causes for reflex pain. In the order of their importance might be mentioned the eyes, intranasal obstruction or pressure, chronic sinusitis and abscessed teeth.

The eyes very often are an obscure cause of reflex pains. About 80 per cent of people who wear glasses have as good vision without as with their glasses. Hence, a person who comes in with a 20-20s vision is slow to realize or be impressed with the fact that he needs glasses and that the headaches and vague pain he experiences really come from his eyes. This is particularly true in hyperopic eyes, and about 80 per cent of refraction cases are hyperopic. The hyperope is usually the one that suffers headaches. The myope rarely has a headache unless the myopia is in small degree and accompanied by astigmatism. It is well to remember that eye headaches occur mostly in the afternoon and evening, while nasal headaches usually come between 8 A. M. and 12 noon. There are, of course, many exceptions to this. As a rule pains from eye-strain localize in the eyes, over the eyes, in the forehead, or in the temporal regions, but many patients will complain of these pains being referred backward into various parts of the cranium. A common site is at the base of the occiput. Another is in the nape of the neck and even between and under the shoulder-blades. A small degree of astigmatism will often cause pain far downward between the shoulders. A less common site is in the region of the mastoid.

Among the intranasal causes of reflex pains we have deflections and spurs of the septum and hypertrophied turbinates. We can readily understand how a constant friction and pressure caused by a deflection of the septum, or by an inferior turbinate bone dragging

on the floor of the nose, can cause a headache or face ache. These pains may be transmitted to any area supplied by the fifth nerve.

The headaches and pains from a chronic sinusitis are very similar to those in the acute form, except in intensity. They are less severe except in acute exacerbations; they are more scattered and general, often affecting the side of the head and face opposite to the diseased sinus.

The reflex pains caused from abscessed teeth you are more or less familiar with. However, at times they are very deceptive. The chief offenders are the cuspids and third molars. The pains are transmitted backward about the ears, in the temporal region and even into the muscles at the nape of the neck. Often a patient has symptoms of wry neck, making it painful to turn the head, or giving him a tendency to shrug his shoulders.

In conclusion, it is my belief that a patient with a case of facial or cranial neuralgia deserves a great deal of consideration and scientific investigation, for I know of nothing that more unfits a man to be a useful citizen than some of the reflex pains referred to in this paper.

DISCUSSION

A. L. Bass, Louisville: Dr. Baker has given us a most excellent paper. I think all of us might talk at considerable length with reference to reflex pains about the head and face. All of the reflex pains have not yet been thoroughly investigated and tabulated, and the diagnosis is not always easy of accomplishment. For instance, I have a patient who complains of pain along the ophthalmic division of the fifth nerve the cause of which is difficult to determine. I have recently seen three patients who complained of reflex pain referred to the ear. One young woman had been advised to have her tonsils removed on account of pain in her ear. Said she had never had any trouble with her throat and apparently there was no trouble on examination. She had a bridge running from a bicuspid tooth across two tooth spaces to a single root tooth. X-ray examination of the teeth showed irritation to the single root tooth; and when the crown was lifted off the pain left the ear. Another adult patient with pain in the ear was relieved by blowing about one c.c. of cheesy mass out of the tonsillar crypt, which was between the anterior and posterior pillar superiorly. She returned in thirty-six hours and said the pain had entirely subsided. A great many of the reflex pains about the head and face are due to defective teeth, particularly apical abscesses. So far as the location of the pain is concerned; it is important to inquire how long pain has existed, when it is worse, what time, day or night, how long it lasts, whether it is dull or throbbing,

whether it is continuous or intermittent. In a good many instances from the patient's history we can come near guessing the existing conditions and know where to look for the cause of the reflex disturbance.

S. G. Dabney, Louisville: I wish to say a few words about some of the things the essayist did not mention. *Tic douloureux* has been classified as a reflex pain. Severe *tic douloureux* is very rarely due to sinus or tooth disease.

Another point he did not mention is the work of Sluder: I cannot help feeling a little skeptical about his results because of the long period of relief he claims to get from cocaine. That is entirely opposite to the common belief. He states that freedom from pain following the application of cocaine will last for a week, perhaps a month, or even much longer, which makes me doubt his results. Dr. Sluder's distinguished reputation gives weight to all he says, and yet I think such results from cocaine are not in accord with common experience.

Referring to one or two other statements in Dr. Baker's paper: I do not believe it is common for sinus trouble on one side to produce pain on the opposite side of the head. There may be pain on both sides, at the vertex or in the occiput due to disease of the sphenoid sinus, but I do not believe disease of the frontal, ethmoidal or antrum of Highmore is likely to cause pain on the opposite side of the head. It would be rather anomalous for it to do so I think.

When I began the practice of medicine we knew nothing of focal infection, but did know that pain in the ear was often due to the teeth. As a rule this pain is reflex and not from infection.

It seems to me that in the great majority of cases reflex pain from eyestrain affects both sides of the head. I do not say always, but in a large majority of cases. It may be over the brow, about the temples, in the occiput, or may extend downward along the neck. It is rarely at the vertex. Unilateral pain does sometimes occur from this cause, but as a rule it is bilateral. Reflex pain from the antrum of Highmore is frequently in the brow.

Morris Flexner, Louisville: Reflex pain from pulp stones has not been mentioned in the discussion or in Dr. Baker's paper. I have under observation a patient who complains of pain over one side of the face sufficiently severe to keep her awake at night. She was seen by a nose and throat man who thought the pain was due to infection of the ethmoidal sinns. Roentgen-ray examination was made and no trouble found in the sinuses nor were there any dead teeth on that side. Cocaine was applied without relief. I happen to mention this case to one of our exodontists who made the diagnosis without seeing the patient. He located a pulp stone and removed that tooth which afforded prompt relief.

Adolph O. Pfingst, Louisville: Dr. Baker's paper should create a general discussion. I desire only to emphasize several practical points in his paper.

As regards pain, I would re-impress the fact that pain along the course of the fifth nerve is seldom interpreted at the point of lesion. To illustrate, we find in cases of abscess of the antrum of Highmore pains referred to temples and vertex and at times elsewhere and from the sphenoidal sinuses to the vertex, etc. However, they are always referred to the same side. There is no communication between the branches of the Gasserian ganglion on one side with those of the other, hence, pain on one side is not reflected to the opposite side. Pain from the nasal accessory sinuses are not necessarily reflex for in addition to tenderness to touch over the inflamed sinus there is frequently pain at that point of lesion.

In my experience there are more reflex pains of the head from teeth than from any other source. We are all familiar with pains in the eyes, in the face and in the head from abscessed teeth and no doubt all of us have seen cases in young boys and girls who were brought to the physician on account of severe earache in whom examination revealed normal drums, and an impacted third molar was found to be the cause of the pain.

Regarding the eyes and the headaches which are considered reflex, I am convinced that eye headaches are very, very common—perhaps more common than is generally believed. However, I do not believe that they practically always occur in individuals with normal vision. My experience does not coincide with Dr. Baker's in that eighty per cent of people who wear glasses for headache see as well without glasses as with them. It is a common observation that individuals with high degree errors of refraction and poor vision do not suffer with headaches nearly as frequently as those with slight errors and better vision and I suppose it is this to which Dr. Baker alluded.

The theory regarding this is that in those with high degree errors and poor vision the muscles of the eye apparently feel incapable of improving the function by their contraction, hence make no effort to do so and cause no pain, whereas those with slight errors can by muscle contraction overcome the errors and bring about improved vision. It is my belief that most of the eye headaches are due to ciliary efforts at contraction.

Gaylord C. Hall, Louisville: I have enjoyed both the paper and the discussion. The various types of reflex pain about the head and face I believe have been well covered.

In regard to the work of Sluder: Like Dr. Dabney I was very much interested in this and have been following the reports not only of

Sluder but those made by some of his disciples. He has described a great variety of reflex disturbances not confined to the head by any means but radiating downward to the tip of the spine, over into the shoulder region, and I think even one where the pain was excruciating in the great toe, which were completely and permanently relieved by cocainizing the sphenopalatine ganglion. The remarkable part of this thing is that notwithstanding the known evanescent effect of cocaine anywhere in the body, it is stated that the effect of this single cocainization of the ganglion persists sometimes forever, it may recur after three or four days to two or three weeks. I think this exceedingly favorable result is something that we cannot expect in the average run of cases. For that reason I was on the lookout for some of these cases, and tried the method as patients came into the office complaining of indefinite pains, especially where they radiated into the shoulder, and the class of cases mentioned by Dr. Baker where there was a painful point behind the mastoid. I must confess that in a few cases the patients expressed themselves as relieved after cocainization of the ganglion. However, the vast majority of the patients I have so treated were extremely doubtful whether it had any effect on the pain or that it had any effect whatsoever. I am loathe to question the conclusions, especially of a man as well known as Sluder, who has every reason to bring forward only things which are permanent and true, yet in my experience I have not seen cases he describes in any such numbers comparatively speaking, recognizing that his practice must be very much larger than mine; certainly the results I have treated according to his method have not experienced the relief from the procedure which he claims to have secured in a much larger number. I have often wondered about this, because reflex symptoms, if we follow the teachings of Sluder, are more widespread from the ganglion than anything else in the entire body.

B. F. Zimmerman, Louisville: One of the most important phases of this subject, from the standpoint of diagnosis, was mentioned by Dr. Dabney when he referred to severe cases of tic douloureux. It has been my fortune to see quite a number of these cases in the last two or three years. They have been referred for treatment either by alcoholic injections or the Gasserian operation.

In those cases where the pain is in the distribution of the mandibular branch of the nerve, all of the lower teeth have been extracted, and frequently operations have been performed on the mandible under the erroneous idea that some disease or source of irritation exists along the nerve as it courses through the bone. These teeth have frequently been removed, as it were, on the installment plan. After extraction of one or two the patient experiences some relief

Soon the attacks recur and more teeth are sacrificed. The process is repeated until all have been removed.

If the maxillary branch is the chief offender in addition to the extraction of the upper teeth there has usually been some operation on the antrum.

I do not mean to say that all cases of trifacial neuralgia resist some of these measures. Many mild cases of neuralgia are caused by simple dental caries, pulp stones, infections of the antrum, etc.; but in the severe type, such as Dr. Dabney mentioned, the pathology is more deep-seated and obscure.

Dr. Flexner's reference to the case of pulp stones recalls one of my patients referred by Dr. Moren, who had been the proud possessor of three pulp stones and was given the assurance that when these were removed she would recover. After a brief period of temporary relief her symptoms reappeared with their former severity. This reference is not made with an intention of criticism, but to emphasize the fact that caution should be used in giving a prognosis in the severer types of painful affections of this nerve.

In these severe types there are only two methods of treatment: Alcoholic injections of the nerve, which is palliative and gives relief from three months to three years, and radical operation on the ganglion or its sensory root, which is curative.

Charles K. Beck, Louisville: I am no so far removed from general practice that I have lost sight of some of the points that arise in general medicine which are always of interest. It is from that standpoint that I desire to speak in discussing the excellent paper read by Dr. Baker.

It is not always easy to determine whether pain of which the patient complains is reflex in character or otherwise, and I cannot see that it makes much difference whether it is reflex or not. It is largely a matter of diagnosis. After the diagnosis is made and we know the cause of the pain the treatment as a rule is not such a bugaboo. That is where we frequently "fall down" in our first attempt to make a correct diagnosis, in cases of so-called reflex pain.

I recall a patient who had excruciating pain beneath the right occiput about the size of a silver dollar. This continued to give him trouble for several weeks. Under the impression that he was working too strenuously he was prevailed upon to take a vacation, but there was no relief from pain. It was then thought the trouble might be due to a eyestrain, so his glasses were changed without relief. Brain tumor and many other things were considered as possible causes. The pain was excruciating and boring in type. After a time I secured history that pain was absent early in the morning. I then thought of malaria, of malarial headache. Liberal doses

of quinine were prescribed and the pain completely subsided. The patient still takes quinine occasionally on retiring at night and there has been no recurrence of the pain.

Malarial pains occur during the day as a rule, but they often extend into the night. Relief generally follows the administration of quinine.

Eye pains also occur during the day and are relieved by sleep. Nasal pains as a rule are worse in the morning on wakening and relief comes after the patient has assumed his regular daily duties.

As already stated it is sometimes difficult to determine whether head and face pains are reflex or not. I believe that we as specialists should not forget what we learned during our general practice. The information is valuable and often aids us in making a diagnosis and we should keep in close touch with the general practitioner of medicine. We should not spend all our time in special work because the head is not separated from the general system. We must take into consideration the general condition of the patient in treating special diseases. The gastrointestinal tract, gall bladder and bile ducts, the appendix, the pelvic organs, etc., may and often do cause pains in the head that are reflex and otherwise, and we as specialists, are often wisely assisted by the family physician or rather we assist him at arriving at a correct diagnosis.

M. C. Baker, (In closing): In closing, I would like to thank the gentlemen for their generous discussion. My thanks are especially due to Dr. Beck for emphasizing some of the general conditions that may cause reflex pains about the head and face. There are many other causes of reflex pain but to have considered them in detail would have made my paper too lengthy.

I also wish to thank Dr. Dabney and Dr. Hall for directing attention to tic douloureux and Sluder's investigations. In the original draft of my paper I included report of a severe case of tic douloureux in a man aged seventy years. He has an attack about every three months, and each time I have removed a polyp from the nose followed by relief. Whether relief was the result of removal of the polyp or caused by the application of cocaine I do not know as I used 4 per cent cocaine at each operation.

Dr. Bass and Dr. Pfingst have discussed the history and location of the pain. I think these items are of great importance. When a patient complains of pain a complete history should be obtained with regard to its intensity, the location, the character of the pain and the duration and time of day the pain comes on.

This subject to me has been very interesting in my practice, and I thought it advisable to bring out discussion and endeavor to arrive at the causes and sources of obscure face and head pains of which patients so frequently complain.



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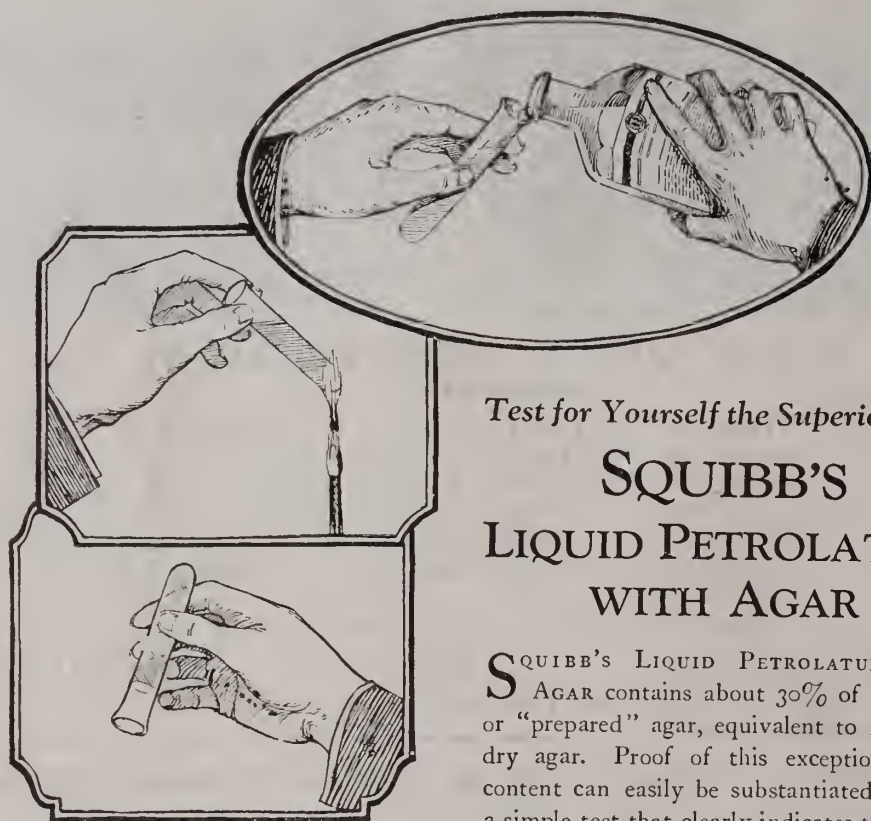
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Lewis S. McMurtry Memorial Number

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IN MEMORY OF MY FRIEND LEWIS S. McMURTRY

By JOSEPH M. MATHEWS, M. D. Seattle, Wash.

To write of the dead is always a melancholy thing, but to write of a dead friend is doubly so. Lewis McMurtry was my friend. Perhaps no one knew him better, or as well as I—surely none outside his immediate family. He and I located in Louisville to practice medicine about the same time, and from the first day of meeting to his last day on earth we were fast and close friends. It was Thackeray who said: "I don't think we deplore the old who have had enough of living and have buried so many others, and must be weary of living, it seems time for them to go, for where's the pleasure of staying when the feast is over, and the flowers withered, and the guests gone? Isn't it better to blow the light out, than sit on among the broken meats, collapsed jellies, and vapid heeltaps?" But was Lewis McMurtry an old man? We who remember his cheery laugh, his brisk walk and firm handshake even until his last breath, did not so regard him, and yet as time is counted, especially by the youth, he must be accounted as in the class of whom Thackeray wrote. The author quoted wrote from the view point that "death is an old man's best friend" but we who knew and loved McMurtry so well felt that it is the *living* that were effected by his death, not he that is dead. I will leave to others to write of him as a man, scholar, lecturer, and surgeon, while I shall be content to speak of him as a friend, as my friend. It can truly be said of him that he was the young doctor's friend. How often when visiting his office did I find there some young physician seeking advice, or consolation, and they never went away disappointed. Indeed I seldom saw him in company with old men, even men of his own age. His heart was young and he loved the gaiety of the younger generation, and it gave him pleasure to join in their sports, their jokes, their songs and sayings. He was very fond of telling jokes on his friends, and often have I been the "butt" of them, but never was there the

vestige of a sting left, so deftly, adroit and kind was his way, and never was any offense taken or intended. What a methodical man he was. You who were in the habit of visiting his office never witnessed any disorder there, a place for everything and everything in its place. I dare say there was never a crumpled bank note in his pocketbook. How clean and neat he was in person and dress. He might have been called an arbiter of fashion, and was such to his friends, for he never violated a single rule or dictation. He was fond of the beautiful, he often wore a rose in the lapel of his coat. Nothing common appealed to him. One June day he and I were walking in Fourth Street and a very beautiful young girl passed us. I said: "Mac, what delightful perfume is it that the young lady uses?" He replied: "Joe, what you are inhaling is no artificial perfume. It is just the fragrance of girl." And what a host he was. You who have been his guests well remember with what delight you dined at his home, drank his wine, and smoked his cigars and enjoyed during it all his delightful conversation, no restraint, you just felt that you were at home, and you were loth to leave. And what a connoisseur he was. It was the invariable custom among his friends, when out to dine, to ask him to order the dinner. His aptness and good taste were always in evidence, and we would eat, and drink, as would befit a king, and the repast would have pleased even Rare Ben Johnson. How gallant he was. No elderly person stood while he enjoyed a seat. To illustrate how punctilious he was in matters of decency, I will relate an incident that took place in a foreign hospital, Vienna. Some American physicians had been invited to attend a clinic of a distinguished surgeon. They went in a body to the hospital and found a young assistant operating, the professor having been detained during the operation. The young girl nurse did something that displeased him and he slapped her in the face. This action so enraged Mac that in a loud tone he reprimanded the young man, and ended by saying: "If you repeat this, we Americans will leave the clinic." His friends applauded by clapping

hands, and dubbed him "The Cavalier," and a cavalier he was, not a lordly knight, but a man always ready to defend the oppressed. I heard a lady once remark "I do so love to have Doctor McMurtry present when I am hostess at a dinner, for he keeps things going in such a pleasant way." So we all felt. Upon an occasion he and I attended a popular opera performance at Macauley's Theater. A Grande Ballet was on the stage and I said: "Mac, where do all these chorus girls go when they die?" He answered: "Why Joe, they don't go anywhere, they will be just dead." You boys that knew him well, know how easy it was to excite him to tears, so tender was his heart. Many, very many, times when touched by pathos, I have seen his eyes fill with tears, and he had a habit at these times of putting his handkerchief to his nose and feigning a sneeze to distract attention. But he never fooled me by such procedure. I have heard men say that he had an "oily" tongue. I heard a distinguished medical friend of his once remark that: "He was the best man in a controversy" that he had ever listened to, that he would *oil* his opponent first with flattering words, and then proceed to "swallow him." Did you ever notice his walk, what long strides he took for a small man? It would puzzle a long-legged individual to keep up with him. And his stride was not confined to his walk, for by rapid strides he ascended to fame. Where he shone with especial brilliance was at the head of a banquet table presiding as toastmaster. For he was "a fellow of infinite jest and most excellent fancy."

But he is gone.

"Where now are your gibes, your gambols, your flashes of merriment that were wont to set the table in a roar—quite crestfallen."

How we shall miss him, for "we shall ne'er look upon his like again."

How often have I heard him repeat the lines of the Persian poet:

"The Bird of Time has but a little way
To flutter, and the Bird is on the wing."

The last time that I saw him was just a few months before his death. We were in an elevator descending in his office building. When we reached his floor he extended his hand to bid me good-bye as I was leaving at once for the Northwest. I declined taking his hand and said: "Mac, old boy. I will not tell you good-bye." He stepped from the elevator and as he turned the corner in the hallway I saw him press his handkerchief to his eyes. I wonder if he did not at that

minute hear the "flutter of the wings." It was not long thereafter that I received a telegram that he was dead, my heart strings gave way, and never since have been attuned.

"The moving Finger writes and having writ

Moves on, nor all your piety nor wit

Shall lure it back to cancel half a line.

Nor all your tears wash out a word of it."

Upon one occasion while in his office I said to him: "Mac, you should tread lightly and watch your step, for some morning I may get a message from your home saying: 'The doctor had a severe chill last night and this morning has a high fever. We fear that he has pneumonia.'" How prophetic were my words, for I am told that it was in this manner that he died. I said to him once in earnest conversation: "If I die before you I want you to write a little something about me." He agreed to do so. But witness the irony of fate. He is gone and here I am trying in a very feeble way to write a "little something about him." But how little they express my appreciation of him and the love that is in my heart. He was the last of the "Old Guard" of which he and I were members, and his death leaves me standing alone. I cannot close these rambling notes without calling attention to the fact that he regarded his family ties, or I should say tie, as sacred. Traveling with him in Europe upon one occasion, he remarked one day to me that we should prolong our stay, and remarked: "Joe, what difference does it make. You have your wife with you, and I have my daughter, and nothing else matters." But he is gone, not by his own volition, but by the same volition that will cause us all to bow to the inevitable,—so let's

"Make most of what we yet may spend
Before we too into Dust descend,
Dust into Dust, and under dust to lie."

A TRIBUTE

By HOWARD A. KELLY, M. D. Baltimore.

How many happy associations, how many pleasant memories are called up by the passing out of life of my good old friend, Lewis McMurtry, or "Mac" as we affectionately called him.

In the early days, he was the intimate friend and admirer of Joe Price in Philadelphia and Mac's high regard was without doubt one of the potent stimuli which inspired much of Price's best pioneer work. How pleasantly

we used to walk together up Chestnut Street towards Price's home, listening to his raucous discourse and diatribes and watching his animated gestures as he described his always thrilling experiences. Then afterwards, the meetings where Joe and Mac seemed almost inseparable.

Mac, too, was a great raconteur and often entertained a large circle at our annual gatherings, I think especially of the Southern Surgical Association of which he was once president. Perhaps he was best as an after dinner speaker where he literally expanded as he progressed, abetted by the manifest sympathy of his entire expectant audience; nor did he ever disappoint them.

He had a distinct flare for history and was deeply interested in McDowell; in one of our last joint researches, we were investigating the forebears of a Doctor McMurtry of Louisville's earliest days, who subsequently returned to Philadelphia to end his days as a teacher—I don't think we ever established any relationship.

Mac was a leading exponent of surgery for the Association of Obstetricians and Gynecologists of which he was also president in 1893. A signal and well-deserved honor was the presidency of the American Medical Association in 1904.

I do not know that he was an originator of any important surgical procedures, but he compassed that which was far more needful in his own section in those early days. Like the peripatetic doctors of old, he often journeyed abroad to other and distant clinics and there observed and then imported the best he had found into the home field and in this way became one of the honored fathers of gynecology in Kentucky, first in Danville and then in Louisville.

His married life lasted but one brief year, from 1889 to 1890. A circumstance which most pleased and tickled the fancy of his intimates was the fact that his lovely daughter, Marie Louise, who remained to comfort him as his most intimate life-long friend, always called him by his first name, Lewis. Like a faithful spouse she stuck to her father until he departed, when she married.

His writings are clear and forceful and possess a marked literary charm. That this was innate is evident from the fine description he gave of his great (perhaps his greatest) operation as early as 1885, remarkable in its time,—the ligation of the right subclavian artery for a large traumatic aneurism of the axillary artery, in which he successfully

followed Erichsen's example and made a most creditable record for his state and proved himself a worthy successor of her noble army of great pioneers.

To us northerners, Mac always possessed that charm of manner, that delightful fluency of speech, and that winning accent which seemed naturally to emanate from his gracious personality which connotes the southern gentleman.

It was one of the sad events of the last meeting of the Southern Surgical Society which he attended, when he was evidently failing rapidly, to see the old sweet spirit ever seeking to rise to each occasion and to reassert itself. Whatever I think of him, I give thanks that I have known him.

DR. LEWIS S. McMURTRY

AN EXTRAMURAL APPRECIATION

By JOHN G. CLARK, M. D. Philadelphia.

In former years members of the medical profession but seldom came into close interstate association, and the prophet distinguished in his home community was often but little known beyond his immediate environs, regardless of highly worthy accomplishments. Through the ever increasing facility of travel and the quick dissemination of knowledge, which has developed during the last half century, the most distant parts of this country have been brought into intimate touch, and today the strong man of any locality finds the search light centered upon him, and thus quickly he becomes a national possession. Wanderlust is now a national characteristic of the American physician, for the modern doctor is fired with a consuming professional acquisitiveness, and the highly commendable desire to become au fait with the most progressive measures wherever they may be inaugurated.

A few years ago there were but few medical centres in America, and they were situated east of the Alleghenies, today the United States as a whole is the great medical clearing house of the world, for one may travel from east to west and north to south, and in every city, and even in the small towns and hamlets, find many physicians and surgeons astonishingly well abreast of the times. This forward movement has chiefly occurred during the last quarter of a century, and in tracing its history certain indefatigable searchers for the truth stand out prominently as its promoters, and none more conspicuously than Doctor McMurtry. He was a

national and international traveller, a discerning surgical connoisseur, a judicious assembler of the best additions to our armamentarium, and above every other characteristic, this splendid man was so endowed with all of the magnetic elements which make for good fellowship that the moment he met a stranger, he captivated him through his charming personality. He particularly endeared himself to younger men because he was so generous and unstinted in his praise, and so helpful to them in their difficult hours.

My first meeting with Dr. McMurtry, which is one of my most cherished memories, dates back over thirty years, while I was serving as Chief Resident in the Gynecological Department of the Johns Hopkins Hospital. Dr. Kelly was frequently called away, and in his absence, the heat and burden of the day fell upon the first interne, a trying situation at best, for there were always many visiting gynecologists and surgeons in attendance upon his clinics from all parts of the world, attracted to Baltimore by the illuminating genius and unique surgical talent of our chief, and they were not, therefore, always patiently disposed toward an understudy. On one of these days, particularly difficult case fell to my lot, and the operation progressed slowly and tediously, and most of the visitors folded their tents and silently stole away. One studiously attentive surgeon remained, and when at last the operation was completed, he stepped forward and introduced himself as Doctor McMurtry of Louisville, and in that winning and highly courteous manner so characteristic of him, complimented us all on the way the operation had been conducted. It is needless to say that every member of the staff was so charmed by his generous commendation, (although we felt it was unmerited, that from that moment we all became his bond slaves. It is no wonder that such men, who give so generously, receive so abundantly.

He was a prolific and excellent contributor to the programmes and discussions of our national societies and always rounded out the circle of good fellowship when fore-gathering with congenial spirits. To paraphrase the old Scotch saying concerning Macgregor, where McMurtry sat "was the head of the table." While he was always a most appreciative listener, I recall one incident when a learned after-dinner speaker talked so monotonously from time almost into eternity—that dear old Mac at last turned to me and whispered, "John, the speaker is seriously deformed." In response to my query as to the type of his

deformity, he replied, "He was born without terminal facilities."

Doctor McMurtry was a true Kentucky gentleman, and in a full appreciation of what this title stand for, what more worthy honor can any man inherit or acquire through gracious civility. His chivalrous and knightly regard for woman was of the old-time vintage, and his heart was filled with the mill of human kindness overflowing with the most charitable and kindly regard for all humanity. Strong men were his intimate associates, but the less favored were affably received as colleagues at his court. At one of the sessions of the American Gynecological Society he was pressing the invitation of Louisville as the place for the next meeting. The Volstead Act had not yet been written into the Congressional Records, but the clouds of coming events were already darkening the horizon. Various counties of Kentucky had cast their votes for local option, and the mint patches were beginning to suffer seriously from this creeping drought. He begged the Society to heed the signs of the times, and urged them to come while this royal herb still flourished in the gardens of Louisville. He recalled with sadness the time when the mint julep was a breakfast beverage, and related one of his earlier experiences in the blue grass country. He was a guest at one of those beautiful estates embellished with its stately Kentucky mansion set back from the roadstead in a picturesque grove of trees, so characteristic of that bountiful land. One morning he had gotten up early, and he sat upon the broad piazza looking out through its great white fluted pillars upon the charming landscape, he saw the old dark-skinned butler with a scythe on his back trudging up to the kitchen, through the broad lawn sloping down to a willow arched brook at the foot of the grounds. After a cordial good morning to the butler, Dr. McMurtry inquired, "Mose, have you been down in the meadow cutting hay?" In response, Mose replied "No, Colonel, jes cuttin de mint fer breakfas." He lamented that those days of abounding plenty were of the past, but said, "Sirs if you will honor us with a visit we will revive the memories of the glorious past and give you a mint julep such as can only be made in Kentucky."

Temperate in all his acts, kindly in speech, generous in thought he loved the good things of life, but abhorred their abuse.

Success in the practice of Medicine depends upon many attributes other than mere technical knowledge. Genius or exalted talent, even when handicapped by the most sour per-

sonality, will bring success to any man because the world is looking eagerly for the pathfinders. The ability to open the door of science to a new world is so transcendent that the personal equation sinks into insignificance in the presence of an outstanding genetic intuition, but in this great workaday world, there are but few geniuses. Next to the creative talent comes the ability to amalgamate one's co-workers into a cohesive brotherhood striving toward the betterment of the vocation to which they owe allegiance. To be able to spread oil upon troubled waters has salvaged many a cause from wreckage. As one of Dr. McMurtry's ardent friends, I estimate this as one of the dominant personal characteristics, which made him such a capital leader. When a discussion became stormy, and an issue appeared to have reached an impasse his was the kindly and judicious advice which brought order out of chaos. His personal motive was never questioned, for no selfish desire swayed him when a matter of principle was at stake. He was a facile and convincing speaker and was ever ready to expend his talent in a worthy cause. Several years ago when the International Medical Congress met in Vienna, a group of American physicians journeyed to Budapest to lay a memorial wreath at the base of the monument erected to George Washington by the Hungarians. The late Dr. John H. Musser, who was Director of the ceremonies, had selected the orator of the occasion, but to his dismay, at the very last moment a message came saying that the chosen speaker had been unavoidably delayed. Knowing so well the generous impulses of his friend, Doctor McMurtry, he turned to him in his dilemma and begged him to give the address, to which he consented. The visiting Americans and a large group of distinguished and titled Hungarians had already assembled about the monument. Without a moment for preparation, but with unhesitating acquiescence in his desire to help a friend, regardless of possible embarrassment to himself, Doctor McMurtry took his stand before the monument, and in the most charming prose, which came from his silver tongue, like sweet sounding verse, he captivated his audience, and triumphantly carried off the honors of the day. This is but another example of the innumerable kindly acts which filled his life to repletion and made him so greatly beloved and honored by his fellowmen.

The elements which constitute the great citizen were joined in well-balanced harmony in his make-up and his loss to hosts of friends

in the United States and to his beloved Kentuckians is immeasurable, but those of us who came within the genial radiance of his charming personality may all feel blessed in the cherished memory of his friendship.

DR. MCMURTRY AS A FRIEND.

By G. A. HENDON, M. D. Louisville.

On account of the multitude and the magnitude of my personal obligations, I must confess my entire inability to address my theme this evening in terms of moderation and restraint. But I am encouraged and reassured by the conviction, that the most extravagant language I might employ could not exceed the facts nor could the wildest flights of my fancy over-leap the bounds of truth.

No wordy tribute that I could pay would make McMurtry's memory one whit dearer to you than it is. No eulogy I could pronounce would add one single ray to the already matchless glory of his name.

We have recently been brought most grievously to realize that the Angel who knocks with equal hand at the cottage door and the palace gate has been busy with his appointed work. There is mourning in the land and the countenances of all are shrouded in a mantle of regret.

We might be permitted to exclaim with the immortal Prentiss when he says: "Well mayest thou Oh! Death recline now beneath the laurels thou hast won for never since thou camest into this world as the Grim Messenger of Almighty Vengeance did a more generous heart cease to heave beneath thy chilling touch and never was thy insatiate dart hurled against a nobler breast."

"Virtue forms no shield to ward off the arrows of death." If it could have availed even when joined with the prayers of a great and noble profession, our beloved colleague's life would have been as immortal as his fame and this mournful occasion would not have occurred.

He who by common consent was acknowledged to be the nonpareil of all his peers, the Premier of all his profession, has forsaken the friends of his maturer years and gone to join the companions of his youth.

The genius of his friendship, as I saw it at short range consisted of its available utility and impartial humanity all of which was blended with a personal charm that few have seen equalled and none have ever seen excelled. He was a useful friend, an accessible friend. True to the traditions of his Caledonian lineage, friendship to him was equal-

ent to kinship and nothing but the extinction of life itself could sever the sacred tie that bound him to the precious objects of his esteem.

So penetrating were his powers of perception and so discriminating were his faculties of observation and so benevolent were all his motives that he discovered in every acquaintance that he had, some virtue, that challenged his admiration, some attribute that commanded his respect. And if as sometimes did occur, his amicable advances were misconstrued or his courtly courtesies imperfectly appreciated, then came no spirit of resentment to cloud the sunshine of his genial disposition. No breath of malice ever polluted the atmosphere in which he lived. It was as impossible for his exalted nature to tolerate a sordid or a selfish impulse or to endure an ignoble sentiment as it is for the pure lights of heaven to mingle with the unholy fires of hell.

While there are thousands who profited by his friendship, not one ever suffered even the slightest inconvenience by reason of his disfavor. If he could not speed one on his way, he never sought to interrupt or impede his progress. No man's success ever made him unhappy, no man's misfortune ever caused him to rejoice. He literally reveled in the achievements of others.

His devotion and fidelity to those who gained his allegiance was marvelous to behold. They stand today and will so stand in the years to come without a parallel in the experience of those who enjoyed his co-operation. Nothing could quench his zeal when once a cause had been espoused. His resourcefulness and the amazing skill with which he marshalled his resources was the wonder and surprise of all who witnessed his activities. He seemed to move in utter defiance of all the laws of force and resistance, his noble purposes to fulfill. With infinite grace and perfect poise, he glided like a ship at sea from easy effort to brilliant and complete success. He wrought without reserve in behalf of those who trusted him with their confidence. He gave of himself without stint, without fatigue and often without recompense to those who relied upon him in the dark hours of their physical adversities.

He found his supreme delight in the companionship of his professional contemporaries and his presence and his influence was a joy and an inspiration to an ever widening circle of devoted admirers which included the most illustrious names in the annals of medicine, either at home or abroad. Nor did the lines which define the various spheres of human endeavor set any boundaries to the marks of

his favor but people of every walk and vocation of life and every stratum of society knocked at the portals of his heart and the door was opened unto whosoever would. It was with an open and an unseeing hand that he scattered in rich profusion the benedictions of his unsullied soul. Any worthy appeal was sufficient to unlock the store houses of his generous nature and in response to the humblest plea the clear sparkling waters of human kindness freighted with remedial measures for human woe, gushed forth as from the unfathomed depths of a boundless ocean of love and compassion.

It was the fledglings of medicine who were the chief beneficiaries of the fruits of his knowledge. It was an inspiration to view the tenderness and the patience and the parental pride with which he taught them to plume their young wings for the altitudes of professional flight. With the gentle arts of persuasion and the blandishments of affection, he overcame their shy reserve and induced them to quaff deeply and drink freely at the bubbling fountain of his rare and ripe experience.

In the Council Chamber and in the Forum when he chose to speak, the wisdom of Nestor flowed from his lips and no stately stepplings into oratory ever surpassed the velvet splendor of his eloquent tongue.

If every grateful sentiment that has escaped the lips of those who feasted at his bounty could have been translated into material treasure, all his paths would have been paved with gold and his abiding places studded with precious stones.

If each individual for whom he performed an act of kindness had borne one single blossom to his bier the air would have been stifled with fragrance and the beautiful City of Danville would have slept that solemn Sunday night beneath an arcade of flowers.

SOME RECOLLECTIONS OF LEWIS S.

McMURTRY, A. B., A. M. D., L. L. D.

By F. W. PARHAM, M. D., New Orleans.

On his graduation in 1870 at Center College, in Danville, Kentucky, with a Bachelor of Arts degree, he came to New Orleans and entered the medical department of the University of Louisiana, now Tulane University. After three years of study he graduated in 1873 as Doctor of Medicine. He was the valedictorian of his class and gave promise in that address of the later well-earned reputation as a speaker. He served as Intern and

Chief of Clinic for one year at the Charity Hospital in New Orleans. He must have made a distinct impression on the medical men of that day, for two years after his graduation he was invited to deliver the anniversary address before the New Orleans Medical and Surgical Association, a very active body of medical practitioners which met regularly every Saturday night. The writer can say little of this period of his life, as all his professors of his time and all the contemporaries in his class who lived in this city, have passed away. Tulane University again honored him in 1909 by conferring upon him the degree of Doctor of Laws.

I first became acquainted with him as a Fellow of the Southern Surgical and Gynecological Association, later changed to the Southern Surgical Association. He was one of the early Fellows of this Association; was President in 1891 and active until 1917 when he became an honorary Fellow.

In his local society at home, in the Kentucky State Society and in the American Medical Association he always took great interest and was a leading figure. He was popular throughout the country and narrowly missed election as President of the American Medical Association at its meeting in New Orleans in 1903, the city of his medical Alma Mater.

At this meeting the plan of a President and a President-Elect was inaugurated and at the following meeting he became President-Elect and delivered the Presidential address at the Portland meeting in 1905. I well remember the occasion. The meeting was held in the Armory, where unfortunately the registration, post-office and some other business necessities were also installed, separated only by a curtain partition from the general auditorium. There was such a hubbub and babel of noise that the speakers' voices were almost inaudible a few feet away. Dr. McMurtry strove vainly for a semblance of order. With great patience he tried to deliver his address; the audience was respectful and attentive but could catch little of the words, I sat very near and realized that a splendid oration was being lost by reason of the poor arrangements for the meeting. He was visibly embarrassed but never lost his temper nor his presence of mind.

Dr. McMurtry was a member of the American Gynecological Association and a Fellow of the American Surgical Association. In all the medical associations with which he was affiliated he was among the foremost in the advancement of his specialty and conspicuous in promoting good fellowship in the profession.

I think he was particularly proud of his fellowship in the Southern Surgical whose interests he fostered in every possible way. He was a regular attendant from the beginning even after he was put on the honorary list in 1917. He was present at the 36th meeting in White Sulphur Springs in 1923 just two months before his death, and by his gracious manner contributed much towards the delightful entertainment provided for the audience of Fellows and ladies after the delivery of Dr. Mitchell's presidential address.

He was ever jealous of the Association's good name, and while always generous and helpful to the striving young surgeon, he was a veritable watchdog of its fellowship, uniformly on the Council, on which he served for many years, exerting his influence against the unworthy and the mediocre. I well remember his characterization on an occasion of the tactics of one man, who followed the association around from place to place hoping by making his presence conspicuous finally to effect entrance within its portals. McMurtry said in the Council it was evident he was trying to beat his way in with an axe. On the Council and as a Fellow he served the Association with an eye single to its best interests. Through the deliberations of this Council the reputation of the Southern Surgical has been maintained on a high plane; no body of surgeons is more highly regarded in this country and abroad and fellowship is eagerly sought from all sections.

The organizers foresaw the need of such a society in the south. The constitution stated its purpose to be "to further the study and the practice of surgery in its various departments, especially among the profession of the southern states." Although in its inception sectional, in membership it was not so, for the need of stimulation was recognized and leaders in surgery in the North, East and West were invited to membership. This infusion of rich surgical blood, mingling with the receptive blood of the South resulted in an association of men practically unique in the history of medical organization in this country. Men from New York, Boston, Philadelphia, Chicago and the other centers of the North, East and West unite with the men of the South in contributing one of the universally considered best volumes of surgical transactions in the world. To the wisdom of men like McMurtry the surgeons of the South owe a profound debt of gratitude.

I dwell thus upon McMurtry's activities in the Association, for he was there such a power for good and there is where I best knew him.

Socially also wherever men and women came together he was a great favorite. In a public address or in the smaller circle of friends he was alike popular. He endeared himself by his genial manners, his gentle wit and humor and his ability to listen as well as to talk. The intrinsic worth of his contributions to medicine, his skill as a debater, his power as a speaker and his generous willingness to give himself to all good causes, with an enthusiasm and ability not often equalled marked him as one of the great men of medicine. His early recognition of the value of the Listerian methods, when even in the country of their origin they made slow progress towards recognition showed McMurtry to be a man of quick intelligence and open mind.

His first great public service was rendered at the age of twenty-five, when after the death of Dr. Jackson he threw himself into the task of properly consecrating the memory of McDowell, a citizen of McMurtry's native town. His efforts were crowned with success at the dedication of the monument in 1879. From that time McMurtry was marked as a man of distinction. McMurtry's name will live along with that of Jackson and Gross because they fixed McDowell's name in history. As McMurtry once truly said Achilles will never be forgot because Homer fixed his fame. Certainly, in the South and especially in the Southern Surgical Association the name of McMurtry will be remembered as long as it shall exist.

DR. McMURTRY AS A FATHER AND SON

BY MARY LOUISE McMURTRY WOODSON
LOUISVILLE

During these months of my father's absence from us, so much of the material of his life and work has been both written and spoken, through the kindness of his many friends, that there seems little to be added to that. It is possible, however, that something of his home and personal life may be of interest to those who read his records, and it is this contribution which these few words would make.

Looking back upon his life at home, the figure of his mother stands out, inseparable from his own. There, was, between this mother and son, a deep congeniality and a beautiful understanding, which never failed them even to her great age of ninety six years. His mother, Amanda Reid McMurtry, was born in 1811, coming of a sturdy Scotch ances-

try, and of a family wherein the medical profession stood in high favor. It was from a favorite brother of hers that her son received his first ambition to enter that calling, an ambition which never flagged, from the period of his extreme youth, when he went about with his uncle to make his calls. This uncle, Dr. James Reid, was a high type of country physician, his calls were made on horseback, and his gift of a pony, to his young nephew, and the invitation to accompany him on his long rides gave keen delight, and engendered the ambition, then and there, to follow in the footsteps of this kindly uncle, and to carry on the work which was his. During the Civil War, my father and his mother were in the village of Lancaster, Ky., where the family then lived, the older brother being in the Union Army. During these years of his childhood he felt a strong responsibility for taking care of his mother, a privilege which he fulfilled so beautifully, in later life. He coveted her praise, even in childhood, and had a peculiar delight in doing the small tasks which fell to him, which seemed to be of assistance to her. His mother, while of a frail type of body, was of an indomitable spirit of courage, poised, keen, with a fine sense of justice and tolerance. He has often described her as "heroic," and this she was, in the truest sense of heroism. She had the ability to meet the issues of life with a resolute strength without bitterness, with a quiet fortitude which inspired all who came within her influence. She enjoyed people, and had the faculty of drawing out the best of those with whom she associated. Her spirit was peculiarly free from small rancors; she was always able to make little of petty irritations and troubles, and these attributes of character my father inherited, generously, from her. When that great sorrow of his life overtook him—the death of his young wife, it was this mother, with her calm courage, who stood by him, and undertook the rearing of his child, and gave him the help and encouragement of a home, for which he always had a deep desire and a great appreciation. It was with this mother that he shared his achievements and his disappointments, though neither of them dwelt upon disappointments, or the negative side of anything, for their comradeship was of equal parts of courage and optimism. Coming into his home, during those years of his most difficult work, it was always to his mother's room that my father went first. Their greeting was always cheery and affectionate; there was an atmosphere of buoyancy and entire rapport, which these two created. Her steadfast belief in him, expressed in few words, but of which he had un-

interrupted assurance, and her upward trend of thought, must have given him inspiration, and restored confidence, often, when he was in the thick of his busy days and the struggle to accomplish something of his vision of that great profession which he so loved, and to which he gave himself, with such enthusiastic devotion. The memory of my father as a son, in all the small and large acts of his devotion to his splendid mother, is, perhaps, the finest memory of all. As the years passed, after she had left us, there was scarcely a day, upon which he did not recall some trait of hers, which he loved, or some incident, which held its significance for him, from their long, happy association.

He loved his friends. It is my privilege to recall the friends of his mid-career with an ever-deepening appreciation of their splendid characters, their elegant manners, their charming conversation. From different parts of the country they came often to our home, and at the meetings of the Associations and Societies, they formed a most interesting and delightful group, equally concerned with the scientific pursuits and the congenial personal association, which formed their happiest vacations. They had inexhaustible stores of good stories, they had the perfect good nature with which one and another accepted anecdotes which treated of his own small oddities or eccentricities. They knew how to travel, they knew how to get the most out of all the experiences of their well-earned leisure—they all knew how to live! Happily enough, many of the members of this inner circle of friends lived in Louisville, but of those who came to us most frequently from other cities were the distinguished figures of Dr. Joseph Price, of Philadelphia, Dr. William Warren Potter, of Buffalo, N. Y., Dr. George Ben Johnston and Dr. Christopher Thompkins, both of Richmond, Va., Dr. Robert T. Morris, of New York, Dr. James Ross and Dr. Adam Wright, of Toronto, Can., and Dr. Charles A. L. Reed, of Cincinnati, Ohio.

Here at home we had men of equally distinguished attainments, among whom there always existed the most splendid fellowship, and who found time, in their busy rounds, for social relaxation, together. The frequent meetings about the dinner tables in these various homes are among the most cherished recollections of one who was privileged, beyond her years, to be among them. Of these near and dear friends who have gone from us during the past decade are Dr. William Cheatham, Dr. An Morgan Vance, Dr. H. Horace Grant, Dr. Joseph N. McCormack, Dr. Clinton W. Kelly and Dr. James Ray. These, and many other friends, were among the

greatest felicities of my father's life, and the deepest shadows to fall across his way, were those times when one and another of them departed from this daily, happy association. Most generously, however, the younger men in the profession, gave of their friendship to this older man, who had, himself, a gift for friendship, and by these he was surrounded and beloved, to the last. And by these have been performed the many acts of love and loyalty, as homage to his memory, which are to live for all time, in my own grateful remembrance. The friends of his youth remained ever fresh in his memory, and their names were household words. A friend was unforgettable.

The books of which my father never tired were those volumes of Dickens, Thackeray and George Eliot, which were also friends in no less a sense than those who lived and moved with him, in the flesh. He loved animals. A dog was always a member of our family, and all the stories of animal life were of interest to him. He loved music, and poetry, and a good play.

He had great capacity for happiness and for enjoyment of the details of life. He loved his work, he enjoyed his leisure. He served, with equal joy, in the large issues of life and the small ones.

The following lines, from *Bleak House*, a volume often in his hands, have always depicted my own appreciation of him, through years of happy companionship—though that appreciation is, of course, beyond all words. "I never walk out with him but I hear the people bless him. I never go into a house of any degree, but I hear his praises, or see them in grateful eyes. I never lie down at night, but I know that in the course of the day he has alleviated pain, and soothed some fellow creature in the time of need. I know that from the beds of those who are past recovery, thanks have often, often gone up in the last hour for his patient ministrations. Is not this to be rich?"

EARLY PROFESSIONAL DAYS

By FAYETTE DUNLAP, M. D.

Danville.

Among the swarm of adventurous pioneers who left the valley of Virginia and climbed over the Appalachian Chain to establish a fresh nucleus of civilization in the forests of Kentucky were the families of Reid and McMurry. This was in the latter days of the Eighteenth Century and before Kentucky had a social organization, and as their names betray their Scottish origin it is superfluous to add that they had the instinct of dwelling only in an orderly society and they straight-

way did their part in bringing it about. We find their names on church rolls, trustees of village and country schools, magistrates of the simple courts, and as tillers of the soil. All necessary adjuncts to a stable and attractive society.

From a union of these clans came Lewis Samuel McMurtry whose loyalty to the best traditions of our creed brings forth the willing tribute we pay his memory today. Just such conditions, a trifle more crude perhaps produced Ephraim McDowell, Benjamin Dudley, Daniel Drake and a host of other splendid examples of the finer aspects of the art of which Dr. McMurtry was a conspicuous ornament. Historians of the development of society in central Kentucky from Eighteen hundred and Eighteen hundred and sixty dwell with emphasis on the peculiar culture of the rural and village life of that period—the golden age of rural life in that favored region. The church had noble expounders of their doctrines, the bench and bar, many examples who won international renown. Educational circles are conspicuously rich in leadership in moral culture and academic training, but none surpassed the medical profession in carrying forward its particular art. In such an environment the first step in rapid advancement is already won. Then came the civil war and this idyllic order was disrupted and civil strife leaves many cureless wounds. The family fortunes were scattered and every expedient must need be brought into play to give the benefits of an educational finish to the youthful mind of Lewis McMurtry, a mind peculiarly receptive to educational approaches. Centre College gave him his academic training and its peculiar system, that social poise, that graciousness that was his particular charm. Another Alumnus of Centre College imbued him with its best traditions, scholarship, leadership, personal independence, one wonderfully successful in the medical art. Dr. John D. Jackson, of Danville, was the guiding star to Lewis McMurtry's ambition. He sensed his preceptor's talent and treasured his example and from the day he delivered the valedictory address at the University of Louisiana he strode easily and confidently forward to professional prominence.

During his preceptor's invalidism he fell heir to his library, peculiarly rich in medical classics, surgical equipment and professional prestige, and quickly overcame the handicap of limited financial resources and moved forward to a fixed place in his calling. By his comely person, persuasive manner and great social charm he held the confidence of his clientele and an advantageous position among

his conferees and in the refined social circles of his community.

Thus has been briefly and imperfectly sketched the beginning days of Doctor McMurtry's professional life and their contribution to his well merited success and I leave to the pens of his colleagues of the University, and to his conferees where his large work was done, to preserve for all time his contribution to the advancement of the healing art.

AN APPRECIATION OF DR. LEWIS S. McMURTRY

By W. J. MAYO, M. D. Rochester, Minn.

The door opened with a bang, and a strongly built man with cropped grizzled hair and mustache plunged into the small room in which I was waiting.

"Well," said he, "what do you want?"

"I am waiting to see Dr. Joseph Price."

"I am Dr. Price; what do you want?"

"I have come to Philadelphia hoping to see you operate."

"I have more people around here now than I can handle.

They are in my way. I operate in the patient's room, a board and a couple of wooden horses as an operating table, and I have no room for you."

A man who had followed Dr. Price into the room, with a sympathetic look in his eye now touched him on the shoulder and said a few words to him. Dr. Price then turned to me and asked, "Where are you from?"

"From Minnesota."

"How long have you been here?"

"Four days."

"Whom have you seen operate?"

"No one; I have waited to see you."

"Where are you going now?"

"I am going to New York."

"Don't do that. Come on in."

The gentleman who stood behind Dr. Price smiled kindly, and winked at me. As Dr. Price went into the next room, this man stepped up and said, "I am McMurtry, of Louisville. Your remark about going to New York did the business. The New York people haven't been very kind to Price."

Dr. McMurtry showed me where to put my things, and took me into the room where Price, the great leader in abdominal surgery in America, was to operate. In the weeks that followed this chance meeting, Dr. McMurtry was like an older brother to me. He won my heart, and remained a dear friend throughout the rest of his life.

Through Dr. McMurtry I grew familiar with what was then known in Philadelphia as the tenement-house school of abdominal surgery, of a group of daring surgeons, none of whom had hospital affiliation or appointment. It was here that I first met Howard A. Kelly, who afterward became the most famous gynecologist of his time. Kelly introduced and popularized cystoscopy and the use of the ureteral catheter, wrote, among other scientific works, the classical two-volume book, "Operative Gynecology," with remarkable illustrations by Max Brodel, and, above all, developed a school of gynecologists of which John G. Clark and Thomas S. Cullen are fine examples. In the same group was Charles Penrose, afterward Professor of Gynecology in the University of Pennsylvania, who in spite of ill health justly achieved a great reputation. Another was John W. Baldy, who developed the Gyneceean Hospital of Philadelphia, and in later years has given to Pennsylvania the best working laws for the hospital education of medical students, and especially for graduate medical education, of any state in the Union.

Dr. McMurtry carried the new surgery into the Ohio and Mississippi valleys, and by precept and example did more than any other man of his time for abdominal surgery, in the middle South. As an operator he was boldly courageous, but very conscientious. No operation which promised benefit to the patient was too difficult, but no operation, no matter how safe, was performed unless it could be shown to be the wise things.

Dr. McMurtry added greatly to surgical literature along the lines in which he was interested. He had a broad grasp of the medical problems of his day, as seen in his address as President of the American Medical Association at Portland, in 1905.

As a guest and as a friend, in my home, he was favorite with children and grown folk alike. With his kindly personality, his pleasant stories, often in the negro dialect, his courtesy, gentleness, and loveliness, he was the true Southern gentleman. Those who knew him best loved him best.

THE CAVALIER

BY FRANKLIN H. MARTIN, M. D., F. A. C. S.
CHICAGO, ILLINOIS.

History tells the story of Dr. Lewis Samuel McMurtry's eminence in his profession, as a scholar, as a teacher, and as the leading official of great societies and associations. My appreciation will treat of him briefly as a friend, a society intimate, and as a boon

companion in the intervals of his busy life which were devoted to relaxation and recreation.

It was a happy group that counted Doctor McMurtry among its numbers. On several occasions, once or twice to England, Scotland, and the continent of Europe, the American Gynecological Club had him as a member. In the dining solon informally, at a dinner formally, and in the meeting of our foreign hosts Doctor McMurtry, with his inherent modesty and strong character, was the center of influence. He made the important addresses; he presided at our frolics; and with his elegant diction and in his dignified manner he was always prompt to propose the health or to pay the deserved compliment that enlivened an occasion or relieved a situation.

Doctor McMurtry was the highest type of southern gentleman, with all of the charm than the quality implies. He was more than that: He was the highest type of cosmopolitan gentleman. Unostentatiously, he impressed one as possessing all of the amenities of social life, the highest attainments of culture and of his profession. He had a friendliness of spirit and a simplicity that commanded the respect and love of all who came into contact with him. He was an ideal traveling companion for a holiday pilgrimage: he knew all things and did all things that tend to enhance the refined pleasure of travel; he was an epicure in the broadest sense; he possessed a low-voiced impressiveness which enabled him to describe the things worth while in a way that developed a yearning in his hearers and encouraged them to immediate action.

The quiet manner and the graceful actions, which bespoke the peaceful man, did not reveal some of the attributes that denote the man of might, of strong feelings, and of militant spirit. In medical society contests, in dealing with questions of policy in the conduct of meetings, and in all situations where judgement and prompt action were essential, he was quick to decide and to execute. Many of us were thrilled by one conspicuous incident which occurred while attending clinics in Central Europe. One if the operators had accorder an assistant unwarranted harsh treatment, which Doctor McMurtry resented; his standard of professional conduct had been violated and the instincts of the southern gentleman were aroused. But for the restraining influence of the surroundings, the occasion might have bided ill for the offender. This lovable companion, this courteous gentleman, was capable of wielding the big stick, if more subtle means failed of square dealing and

and peace. during our many years of association he grew upon us as the congenial friend, the distinguished associate, and above all through his every action he was the exemplar of the true cavalier and affectionately that is what we called him—The Cavalier.

LEWIS SAMUEL McMURTRY

"THE MAN I KNEW"

BY CHARLES A. L. REED, CINCINNATI

We in Cincinnati had grown to select a particular spot for the holding of conferences of meetings around which we desired by such association to throw the glamour of distinction. That spot was parlor "A" of the old Burnet House, our far famed hostelry of the middle decades of the last century. It was there that the Federal Chiefs of the Civil War, Grant, Sherman, Wallace and others met, and planned and counceled and fared forth to do their duty as they saw it on the field.

It was there that in September 1889, was held a small gathering of enthusiastic members of our profession from many states for the discussion of problems that would increase their efficiency as the servitors of the people. At the first session of that meeting the distinguished Dr. Albert Vander Veer, of Albany, had presented a brief and interesting report. He was followed by a rather drapper man of about forty whom I had never before seen. He was faultlessly groomed, was a little bald, had close cropped hair and an overhanging moustache.

He stepped forward with alert but confident step and with modesty but in sweet and mellifluous tones presented the brief record of a surgical triumph. It was a case of ruptured ectopic pregnancy upon which he had operated and saved his patient. There had been a few of them done before, thousands have been done since, but at that time it was yet pioneer work. It required diagnostic acumen in the solution of a problem that had not yet been taught in the schools or demonstrated in the clinics. It required initiative and courage. These qualities had been unmistakably displayed by the young surgeon and were evident in spite of the brevity of his modest and unassuming report of possibly a thousand words. When he had finished, his twenty-two conferrers tended him the longest applause that I have yet heard in a small deliberative body. But among the men who joined in that demonstration and gave it significance were E. E. Montgomery, Albert Vander Veer, Joseph Price, Rollin L. Banta, David Barrow, J. H.

Carstens, William H. Taylor, William H. Wathen, Williams Warren Potter, James F. W. Ross, and Rufus B. Hall, all of whom today rank as men of great distinction and several of whom participated in the ensuing discussion.

I, with some trepidation, then presented a paper on the ruptured parturient uterus with the report of two cases. At the conclusion of the discussion of my paper I arose at once to seek and make myself acquainted with the brilliant surgeon who had preceded me. He seemed to have been seized by a similar impulse for we met half way.

"I congratulate and thank you, Dr. McMurry", I said. "I was coming to say the same to you" was his reply as he grasped my hand with the smiling cordiality that, as I soon learned, always characterized his greetings.

That greeting was the beginning of a friendship which, for the ensuing thirty years, was never interrupted for a moment; a friendship that resulted in frequent yet all too infrequent personal association; a friendship which, among men these days, was in many particulars unique; a friendship the memory of which for me, as evening now approaches, lends a golden halo to lengthening shadows.

Dr. McMurry, as I later came to know him, revealed himself to me for the next few years chiefly through association incident to the meeting of our National Medical bodies. The American Medical Association, the American Association of Obstetricians and Gynecologists, the American Gynecological Association and the Southern Surgical and Gynecological Association the last name now being the Southern Surgical Association. As I look back over the vista of years and see men and events in the clearer perspective made possible by the passage of time, I can realize the large share in the shaping of professional influence that was exerted by the man whose memory we honor tonight. He was always close to the center of things he always had clear ideas and good ideas and always presented them with that diplomatic force which carried them into action. It was for this reason that he was generally in office—a trustee, a member of the council, a chairman of a section or president of an organization. These distinctions were continually being thrust upon him and until they were exhausted. They sought him because of his interest and fidelity and intelligent understanding of the functions that pertained to them. They were drawn to him by his inherent quality of leadership. I can recall that in close conference when it was suggested to him that

he be given certain distinctions, he was very wont to waive them aside in the interest of other members whose preferment he thought would best subserve the interest in hand. He was not a seeker after mere preferment. You can readily understand, therefore, that these contact with this unusual personage brought to me so many revelations not only of his ideas but of his really exalted idealism.

It soon came about that we began to spend our vacations together. At such times, at one resort or another, our companionship was of that intimate and congenial sort that made us very largely indifferent to and independent of other immediate human environment. We thus spent seasons in the mountains by the seashore, on ocean voyages and in foreign resorts. It was in the course of these associations, and as a guest at his home or he at mine even more than when in attendance upon our national meetings, that the real man became revealed to me. The idealism of which I have already spoken seemed continually to be cropping out. After a while I began to understand its genesis.

McMurtry came of characterful Covenanter stock. He had sturdy and cultivated parents. His father died when he was young. His mother, toward whom he always manifested the tenderest devotion and who survived to within a few years of his own death, was a woman of extraordinary worth of character. I have frequently heard him make tender acknowledgement of her teachings in his early life and observed many demonstrations of his tender solicitude for her. Born in Garrard County, Kentucky, at exactly the middle of the last century he had a boyhood familiarity with nature. The stories of his boyish pranks and scrapes which he often told with great humor indicated simply a normal and virile youth. He was early impressed with the excellence of those with whom he passed his early associations and cherished their memories to the last. He, however, was not of a temperament that would incline him to a bucolic life. His normal trend was distinctly to the intellectual and the conventional—toward academic, social and urban ways.

It was in accordance with these inclinations that he early went from high school to Centre College where he graduated at the age of twenty. I must pause just here to gather from the many surviving impressions of his unremembered conversations something in the way of an appreciation of this great institution of learning. He loved it. He was fond of speaking of the Rev. Dr.

Breckenridge, its one-time president, who had imparted to it a certain individuality, a certain character, comparable to that which Mark Hopkins about the same time was imparting to Williams College and James McCosh to Princeton. I am very sure that much of the idealism that always actuated Dr. McMurtry in the years that I knew him had its birth in the general atmosphere that had become established in and around Danville by this great educator. Some time since, in conversation with the Honorable Richard P. Ernst, your present United States Senator, I went over an easily remembered list of celebrities who had graduated from that same institution that has done so much to irradiate not only Kentucky but the whole Southern section of the United States with wholesome respect for learning and law and religion and a trained observance of the great fundamental truths of right living and sound citizenship. McMurtry, of course stood foremost on the scroll of honor, a scroll by the like of which all institutions must take their relative positions under the appraisal of the people.

But it was not only Centre College and Dr. Breckenridge and the educational and social atmosphere of Danville that, in a general way, gave tone, direction and purpose to this rapidly forming character that was presently to achieve great distinction in our country.

There were other and more specific influences which, however existed and became operative under the environment to which, I have alluded. Thus while young McMurtry was a student at Centre College there was an extraordinary man engaged in the practice medicine in Danville. He was Dr. John D. Jackson, a cultivated gentleman, an assiduous student, devoted exclusively to the science of his profession. He was rather unique among the men of his period. He had taken time away from his practice still further to qualify himself at clinics and hospitals in this country and in Europe. It was to this man that the promising college senior was attracted probably by many congenialities of temperament, Jackson, aside from being a practitioner was a national teacher—a "preceptor"—a type of man who when faithful to his duty, as Jackson was, exerted a powerful and beneficent influence under the old regime of medical education. Jackson took students. It was no prefatory taking. His students studied. He saw to it that they not only studied but understood what they studied. He like John Bull in Edinburg, John Hunter in London, Geo,

McClellan in Philadelphia had a dissecting room and he began with the students where they ought to be begun with, namely, in the study of the structure of the human body that was to be the subject of their work. It was into this sort of a professional atmosphere that McMurtry was inducted at the very beginning of his career as a medical student. One cannot over-estimate the value of such a beginning in determining the subsequent evolution of an intellect that has been made its beneficiary.

But there is something more in the way of intellectual antecedents and environmental influence of which this young student of Jackson became the beneficiary. It was in Danville in 1809, that the first ovariectomy ever done was performed by Ephriam McDowell. It was an epochal achievement. Danville was proud of the distinction that it had thus been recorded in the pages of surgical history and inscribed on the map of humanitarian science. None was more sensitive to or appreciative of this great distinction of its significance, of the exalted mental attitude to which the medical profession had been placed by it, than was McMurtry's preceptor, Jackson. It was probably this fact as much as any other that prompted Jackson to go for a post graduate study to Edinburg where McDowell himself had once been the student of John Bull and the class mate of John Lizars. It was with the history of this Epochal achievement of McDowell's that McMurtry was destined to become not only a student but an exemplar. But at the period at which I am now considering him I can vaguely recall impressions that I have derived from his conversations to the effect that the McDowell tradition had much to do

in developing his predilection for surgery. This prompts me to observe that, in a very distinct way McMurtry was a McDowell surgeon in regular line of descent. I would like to emphasize this thought a little. It comprises a subject that is destined to have more and more recognition and one which has had a very striking exemplification in the subject of this memorial exercise.

I allude to the heredity of ideas. It is by virtue of this phenomenon in nature that there are masters and disciples and apostles. It is by virtue of the same phenomenon that we have professors and students and followers expanding into "schools" in the broad sense of that word. If we take the instance of McDowell we find the immediate tracings of his influences in Alexander Dunlap, Peasles, the Atlees, Gilman Kimball of the next generation in this country and in Sir Spencer Wells and his immediate following

in Great Britain. From these various centers the McDowell inculcation expanded in so many widening circles until by contact and coalescence they finally embraced the civilized earth and disappeared in the still waters of accepted science.

John D. Jackson, the preceptor, went through the Confederate Army to Appamattox. He was indented with the impulses and aspirations of the South. It was not strange that his student should have been attracted to the greatest medical school of that period in all the vast region South of the Ohio River. This was Tulane University with Charity Hospital as its great clinical center. There were, of course many other sectional reasons why any student might well have selected that illustrious school for his technical education. There was a galaxy of illustrious men who had returned from the bloody experience of the Civil War and who were laboring with might and main to reconstruct the edifice of medical science in this ancient seat of French and Spanish civilization in America. I recall with great satisfaction the stories that McMurtry told of his experiences there as a student. On the occasion of several of our visits to New Orleans it was with extreme pleasure that I went with him to pay his respects to some of the yet surviving members of his faculty, the last of whom, I believe, was Dr. Stanford E. Chaille. It was here that his early implanted ideals found yet other exemplifications. He went from New Orleans back to Danville at the early age of twenty-three to begin a professional career that made him one of Tulane's most renowned alumni. It was, of course, the magnetism of Jackson, the high professional atmosphere of the place and the homing impulse in the young graduate that took him again to the scenes of his college life and to scenes that attended the beginnings of his professional studies.

When we again arrived at Danville he found Jackson profoundly interested in the establishment of a fitting memorial to the memory of McDowell. Jackson was also at that time engaged upon his translation from the French of Farabeuf's striking book on the ligation of arteries. It was a literary atmosphere. Jackson finished his translation but he died before the completion of his undertaking to honor McDowell.

It was a striking compliment to the personality and ability of young McMurtry, then aged, twenty-five, that the Kentucky State Medical Association should designate him to succeed Jackson as chairman of the McDowell Committee. This circumstance

was destined to have a great influence upon McMurtry's subsequent career. He addressed himself to his task with relentless enthusiasm. In developing the movement he was brought into early and intimate correspondence with Gross, Sayre, Peaslee, Parvin, Austin Flint, Gilman Kimbal, T. Gaylord Thomas, T. G. Richardson and Oliver Wendall Holmes of this country and with Sir Spencer Wells and other leading surgeons of Great Britain. His careful letters, his perfect diction, served only to pave the way to later personal acquaintance of these and other distinguished men with his charming personality. The climax of his efforts as a committeeman came with one of the most memorable meetings of medical men in this country, held in connection with the dedication of the McDowell monument at Danville. It was the full fruition of the labors of Jackson and McMurtry. Gross delivered the oration, a masterly review of McDowell's life and of the early history of ovariotomy, and did it with that splendid finish which showed again that England's most ancient seat of learning had honored itself when it had honored him with the degree of Oxonian. The event made a profound impression, as well it might upon the mind of young McMurtry. He as chairman of the committee, was essentially the master of ceremonies. It brought distinguished men in contact with the man from whom they had been receiving carefully written, graceful and persuasive letters. I know of no instance in which an association there and thus begun with McMurtry was ever terminated except by death. These associations shortly led McMurtry to visit our great Eastern hospitals and clinics under circumstances of singular advantage. He was always in the arena. He was always invited to stand at the elbow to look at an operation at close quarters. He was always at least one of any who became dinner guests if not the house guest of the surgeon.

It was this same chain of influences that took him abroad. McDowell had sought Edinburgh Jackson had sought Edinburgh. It was but natural that McMurtry should seek Edinburgh. It was several years later before I went to Edinburgh. He had already become a tradition. In the homes of distinguished surgeons where he had had the good fortune to become a guest there was an invariable inquiry after McMurtry. The inquiry was generally accompanied with or followed by a smile that was broadened into a laugh as the interlocutor recalled some of McMurtry's wonderful stories. I think I achieved some distinction

and became persona grata by being able to rehabilitate some of these stories which had been either partially forgotten or much distorted in their repeated tellings. It was while at Edinburgh that he formed the acquaintance of Sir Halliday Croom for whose then recently published book McMurtry wrote an introduction and otherwise prepared it for American publication.

We several time journeyed abroad together. As a *compagnon du voyage* he was simply delectable. Nothing disturbed him. There was always that general consideration for the comfort and happiness of everybody else, and of everybody else first, that made everybody else his debtor. He was always cheerful, sunshiny and if in his own comminglings with others he chanced to pick up some interesting bit of information or experience he was restless until he had imparted it to his own companions. He was a keen observer of human nature, both in gross and in detail. He read people with singular accuracy at sight and he analyzed them with singular precision on acquaintance. He was always keenly alive to the humorous, not to say the ridiculous, but he indulged in neither humor nor ridicule at the expense of another's pain. In visiting great cities, he was a keen but discriminating observer. He had a remarkable intuition for selecting that which was worth while and ignoring that which was of less value. He enjoyed people rather than buildings, and would go far to visit a worth while person rather than spend his time and energy upon brick or mortar or canvass or paint or sculptured form. He was, however, far from insensible to the attractions of art and indulged a positive taste for it by liberal patronage. But it was the human elements, the palpitant breathing human being, that appealed to him.

I recall an interesting motor tour that we made through the Chateaux country of Lorraine and, later, far out to Finisterre in Brittany. While the great buildings with their architectural costliness and historic attractions interested him very much he was even more profoundly interested in the actual contemporaneous life that surrounded them. I recall that in Brittany we had gloomy weather. It seemed exactly to fit both the country and the people. We motored to the coast-wise towns inhabited in large part by fisher folk who had rendered of their kind much of human life to the sea. The cemeteries were numerous, old and populous. There seemed on every hand to be more the evidence of death than of life, more of sadness than of joy. These conditions appealed

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to McMurtry who responded to them in his great sympathy but, as if in an impulse of self preservation, he said to me, who was acting as cicerone: "For the Lord's sake, Charlie, hunt up the shortest way out of this land to some place where the lights shine and the people laugh." This was but the natural reaction of a man who, by temperament, constantly used the smiles that he shed as vehicles for the joy that he imparted to others.

And now let me say a few more words about the ideals of this idealistic man. In his profession his ideals were of the highest and most progressive. This was true not only in the discharge of his professional duty to his patients but in the vastly greater responsibility of imparting knowledge in the course of medical education. He was a man of profound convictions but he never to my knowledge entertained a conviction that he would not readily surrender in the face of evidence to the contrary. This indeed is the key to the progressive mind. While holding to that which was good in the older order of medical education he was insistent on the adoption of newer methods that promised better results. He labored zealously for the better status of the medical school in the scheme of university organization. He stimulated the development of methods of precision in both investigation, teaching and diagnosis by laboratory methods. He, however, never failed to recognize the importance of the didactic lecture with which he himself was *facile princeps* on subjects that could be imparted by that medium. With his own life moulded into accurate form and stimulated to the fulfillment of high ideals by stronger men, he was always impressed with the importance of the strong man in medical education as in all other relations in life. He felt that under our modern highly standardized methods of procedure too little of opportunity was left for the development of personality and individuality while, per contra, the general product of our schools was being cast into a common mould by which something that is vital is being lost to our profession.

And now a final word. It is to the good fortune of the world that, through transmission of life, worth may be got and humani-

ty thus continuously advanced we find this great fact happily exemplified in the instance of him whom we honor here tonight Sir Francis Galton by his study of English judiciary, in his "Hereditary Genius," has, shown that this great fact is based upon biologic law—a natural law which, if recognized and observed, insures a like the perpetuity of the family and the progress of the people.

There was a time, not yet wholly passed, when there was no recognition of or regard for such natural law. With what result? Where today are they that sprang in the long ago from the lions of the great and the wise? Has greatness or wisdom, thus derived courséd unhindered and unalloyed down the continuous tide of life? Who and where today are the children of Pythagoras, of Socrates, of Plato, of Aristotle, of Euclid? And they of the Renaissance, two thousand years later Leonardo da Vinci, Copernicus, Paracelsus, Vesalius, Gilbert, Galileo, Harvey, Descartes, Newton—where, I ask, are they that sprang from their loins? Not a single "here" comes in echoing answer. But I change the question: Who of today are the lineally-begotten of their brains? Where today are the intellects that were propagated by their intellects? From all lands and all climes now comes a responsive "here" it is a mighty chorus—it is the voice of civilization. Thought begets though and is immutable. It is law. It is inherent natural law, the very essence of man's progressive evolution. Shall we not, then observe the law? Shall we not so adjust ourselves to its operation as to secure for us and ours its fullest benefactions?

How may we—how may you—carry out this purpose in the present instance? Let me give you a simple formula: Gather together the writings of L. S. McMurtry, publish, and make them accessible. Create and endow in his name a professorship in the University of Louisville that he so loved and honored. Dedicate that professorship to progressive surgery. Direct that, under its auspices and in addition to its regular teaching functions, there shall be delivered an annual oration based upon an actual study of McMurtry's character and writing in their relation to surgical science as then developed, and in their relation to professional character as then evolved. Do this, citizens of Louisville, in honor of one who has so greatly honored you; do it to perpetuate the distinct influence of this exemplar of advanced science and exalted ideals; do it to keep forever green the memory of the gentlest gentlemen I ever knew.

DR. McMURTRY AS A CITIZEN

BY YOUNG E. ALLEN, LOUISVILLE

I have never thought of Dr. McMurtry as a citizen. I don't think any real routine citizen ever thinks of the real surgeon and physician in terms of being another citizen. In fact the less such a man concerns himself with the special activities of the citizen, even on the highest plane of building, planning, promoting, accumulating and passing on wealth and material monuments to posterity, the more we think of him in terms far above those expressed in citizenship.

We, who are the patients of your profession, have an ideal of it probably higher than you yourselves entertain. You perceive it in the light of its hopes and disappointments, its successes and failures, its labors and exhaustions. We, laymen, prefer to view you in the form of trained soldiers of humanity, standing guard at the passes between this world and another—watching for us, keeping the invader out, falling on the battlefield yourselves in the effort to protect and keep us safe. Such service such devotion, such courage call for far more equipment in nature, skill and dedication than the duties of plain citizenship. In such a physician we recognize the man who can scorn money when measured against duty, who can sacrifice ease and safety for himself to bring them to others—who can even face death that others may live.

In your profession, as in others which stand as beacon lights of civilization there are those who cannot and do not qualify within the radiance of that high idealism. They lack the nature, they fail in acquiring the skill, or they are dragged down by the importunate demands of personal responsibilities until they practice medicine or surgery as a business instead of a devotion, as some ministers of the church practice religion as a profession instead of a consecration.

It is such men as Lewis McMurtry who keep the torch burning upon the highest mountain tops, where countless thousands may see and be beckoned to attempt the best and highest in them. They are the spiritual inspiration of their own profession and they light the way for ideals in others. They lift the whole mass of mankind in the inverse of the proportions of the attraction of gravitation, because one such light can attract thousands into the glory. Medical and surgical annals viewed in such manner are filled with the names of saints of humanity who have while living literally scorned luxury and pleasure in order that millions unborn should benefit

by their sacrifices without even knowing the names of their benefactors.

It is not for me to discuss the skill, the research, the life devotion to his profession of Dr. McMurtry, nor the value of his achievements and discoveries in the field of surgical science. All of you know that far better than I do. But I know that his reputation was nation wide and that he was honored and admired wherever there are those who cherished the highest ideals of their noble work. For that reason those of us who are citizens looked upon him and honored him as one whose fame made all of us partakers in the honor of his citizenship in Kentucky and Louisville. The fact that he was generous of heart, noble in purpose, wedded mentally to the mistress of his life work in a fidelity that no mere worldly success could tempt, made all who knew him trust and honor him. That is after all the highest expression of the noblest citizenship. At that point Dr. McMurtry, nominally a citizen of the world, became in fact the super-citizen. He died happily, with the course of his great ability not yet run out; with the admiration and honor he had so finely won still fresh; before he could feel "a hot friend cooling" or "love beginning to sicken and decay." And he has left behind him the solemn monument of a noble sorrow in the hearts of all those who had the high privilege of knowing him in the world he served so splendidly.

A TRIBUTE TO DR. LEWIS McMURTRY

BY J. GARLAND SHERRILL, LOUISVILLE

I esteem it a great privilege to be permitted to speak to you on this occasion, which, though tinged with so much of sadness, permits the expression of our appreciation of the ability, our joy in the companionship and our pride in the attainments and the benefactions to mankind of our lamented confrere.

Lewis S. McMurtry, born Sept. 14, 1850, at Harrodsburg, Ky., a graduate of Centre College, 1870, obtained his Doctorate in Medicine from Tulane University, where he sat at the feet of Souchon, the great Anatomist, and of Lewis, the able but modest Surgeon.

He obtained his Surgical inspiration by the side of Mr Lawson Tait, Sir Granville Banker, and of Joseph Price. He was an intimate of Sir Halladay Crume, of Edinburg, and Segond and Pean, in Paris, and was always an admirer of Ephraim McDowell,

contributing to medical literature a most excellent biography of this great pioneer Surgeon.

He possessed those characteristics so necessary to success in a professional career. He was suited by temperament, by his gentleness, tact and sympathy to the practice of Medicine and Surgery. He was first a great Physician and then a great Surgeon. He was pleasing in manner, courteous in a marked degree, but by no means a weak or supine combatant. His motto was, "Fortiter in re, suaviter in modo."

He made friends of the strongest type everywhere, and was signally honored by the local as well as the National profession, serving as President of the Kentucky State Medical Association, the Southern Surgical Association the American Medical Association and was one of the founders of the American College of Surgeons. He also served as President of the State Board of Health.

These honors were well merited, and by such associations he was ripened for the teachings of Abdominal Surgery, in which department he was Professor and President of the Medical Faculty of the University of Louisville for a number of years.

He was a pleasing and forceful speaker and always drew a large attendance, was eminently successful in imparting those practical suggestions called "wrinkles" by Sir Milner Fothergill, which are so valuable to the young practitioner.

His teaching exemplified the value of the practitioner teacher, in contradistinction to the all time teacher.

My acquaintance with him began in the late eighties, and for a number of years I was his Surgical Assistant, and later for more than fifteen years was his Office Associate. During all this period our association was most pleasant, and the only severed upon my entrance into the Army during the late War.

He was a lovable companion and a loyal friend. There is always one person who makes a strong impression on one during his formative period, and to Lewis McMurtry I am indebted for direction and guidance in my early Surgical career. When Senns' noble work appeared he commended it to me with the statement. "This is the newer Surgical pathology."

McMurtry developed in the period of transition from the preantiseptic through the Listerian period to the days of the Aseptic practice of Surgery.

The strongest of the early advocates of Aseptic or clean Surgery was Lawson Tait,

of whom Dr. McMurtry was a great admirer. The contest to establish the ideas of Pasteur of Lord Lister, and finally of Tait in this country, and particularly in this vicinity was a vigorous one, and in this contest McMurtry was one of the leaders and he left his imprint upon Surgery throughout the entire country.

His students, many of whom have achieved renown, bear the impress of his teaching. He was kindly in his treatment of his patients, particularly those in the charity wards, and they were his devoted admirers.

Mention was made recently at a dinner of this Memorial meeting, when a gentleman present, now a State Senator, gave me the following incident as characteristic of our lamented colleague.

As a barefoot boy of nine, Mr. Hasselton says a growth appeared upon his face, which was cauterized by his local physician, but became aggravated. A second treatment made it more angry. His father advised a third treatment, but the boy demurred and said he wished another physician. He was sent to Dr. Lewis McMurtry, at Danville, Ky., who very promptly relieved him. When asked by the lad for his charge, Dr. McMurtry said, "Tell your Father that I have charged this to old times' sake." This kindly act made a very strong impression upon this barefoot lad, who is now a member of the State Senate and one of the strongest friends the Medical Profession has. To my mind this is typical of Professor McMurtry's kindness and his high regard for all that is best in Medicine. At no time did he succumb to the temptation to commercialize Surgery, but always held for uplift and altruism.

"Thus to relieve the wretched was his pride,
And e'en his failing lean'd to virtue's side.
But in his duty prompt at every call
He watched and wept and served and felt for all.

He traveled the world over,
Oft sailed the bounding main,
But to him Danville was, "Sweet Auburn
Loveliest village of the plain."

"In all his wanderings round this world of care,

In all his griefs, and God had given him his share,

He still had hopes his latest hours to crown
Amidst these humble bowers to lay him down."

Dr. McMurtry was a great stickler for care at operations—careful hoemostatsis—avoidance of insult to the tissues—and believed that in the great majority of cases the fate of the patient was sealed on the table.

During his early surgical work Surgeons were compelled to meet and overcome a marked prejudice on the part of the laity against surgical operations. This was because of the high mortality occurring in the pre-Liite days, and it took time and good results to convince the public of the safety of high grade Surgery. Reduction in mortality from forty per cent to one or two per cent made a marked difference upon the part of the patient to accept operative intervention.

There was but little justification at that period for the cry that unnecessary surgery was being done. In fact while perfection of surgical technique has placed operative aid in many more hands, I do not believe that there is any great amount of unnecessary Surgery done now.

Dr. McMurtry's ideals were of the highest. His faith in the Medical profession was deep and lasting, and like all other men of high principle he always based his surgical opinion upon what was best for the patient. He only advised operations when there was some clear indications for such treatment, and never adopted fads or surgical procedure in which the final results were doubtful.

In closing I can do no better to epitomize his character than to repeat a quotation from possibly the greatest of England's novelists of the nineteenth century—George Eliot—in her Essay on Heinrich Heine, because it is peculiarly fitting—"He shed his sunny smile on human tears and made of them a beauteous rainbow upon the cloudy background of life."

MEMORIAL

Dr. Lewis S. McMurtry died at 11 A. M. on February 1, at his home, No. 5 Ormsby Place, Louisville, Kentucky. Through his death the University of Louisville School of Medicine loses the oldest and best known member of its faculty. This memorial has been prepared and is adopted with sadness in the hearts of all the members of the Executive Committee as a feeble attempt to express their appreciation of his long services to medical education in this city, this state and the medical profession of America.

Professor McMurtry was born on September 14, 1850, in Harrodsburg, Kentucky, the son of L. R. and Amanda Reid McMurtry. He was descended from a long line who bore the name of McMurtrie. He was graduated from Centre College in 1870 with the degree of A. B. and three years later was graduated in medicine from Tulane University. The degree of A. M. was conferred upon him by Centre College in 1875; the degree of LL.D.

by Tulane University in 1909 and by Centre in 1922.

Doctor McMurtry began the practice of his profession at Danville, where he was inspired by the history and attainments of Ephrain McDowell. Later, he was the chairman of the committee which erected the McDowell monument in Danville and is said to have been responsible for originating the movement which resulted in the honor finally paid to Doctor McDowell for his epoch-making contribution of the first ovariectomy. He retained his love for Danville to his death. There his wife, who had been Miss Mary E. Ball of Covington, had died in 1880 after the birth of their only child, Miss Mary Louise McMurtry. For years his daughter had been his companion. In accordance with his own wish, he was laid to rest on the beautiful Sabbath morning following his death between his wife and his mother in the Danville cemetery.

Doctor McMurtry came to Louisville in 1876 and early became associated with medical education. He was Professor of Gynecology in the Hospital College of Medicine from 1893 to 1908 and became Professor of Abdominal Surgery and Gynecology in the University of Louisville Medical Department when the Hospital College was merged into that institution. At the same time he became president of the faculty and retained these positions until he was elected president of the Kentucky State Board of Health when he became President Emeritus and Professor Emeritus of Abdominal Surgery and Gynecology. He was President of the Jefferson County Medical Society three times, of the Kentucky State Medical Society in 1880-81 and the American Medical Association in 1906-7; he was also a member of the American Surgical Association, the Southern Surgical Association, the American Gynecological Society, and a fellow of the Edinburgh Obstetrical Society. In 1913 he was the accredited delegate of the United States to the seventeenth annual Medical Congress in London. For many years he was president of the staff of the Norton Infirmary.

In medical affairs in Kentucky Doctor McMurtry took a leading part. Blest with vision and ideals beyond those of the average man, he was a prime mover in amalgamating the medical school in Louisville and threw all of his influence upon the side of progress towards the standards set by the American Medical Association and the Association of American Medical Colleges. He was the hand of peace-maker, the mind of the pioneer, the poise of a man who knew men and loved to work with them. Enumeration of

his accomplishments is not to be recorded here, but it is conservative to say that no man in his generation has done more for the medical profession and the public than he. To Louisville he brought fame as a surgeon and an author; his place cannot be filled.

In recognition of his many attainments and his great service to this School, be it

Resolved: That we, the members of the Executive Committee, herewith record our feeling of great loss and, in tribute to his memory adopt this expression of our sorrow, and, further, be it

Resolved; That a copy of this memorial be spread upon our minutes, a copy sent to his daughter and to the Kentucky State Medical Journal.

(Signed)

DR. S. G. DABNEY

DR. IRVIN ABELL

DR. P. F. BARBOUR

DR. W. A. JENKINS

DR. STUART GRAVES

DR. A. W. HOMBERGER

DR. H. G. BARBOUR

A LETTER

Pittsburg, Pa
February 15, 1925

My Dear Doctor McCormack:

On reaching here this morning I was shocked and grieved to have your telegram telling of the passing of our dear good friend Dr. McMurtry. The message was immediately forwarded to my home address in Carolina but did not catch up with me until I returned here. My plans had included a brief stop at Louisville to see him, probably in early March. But alas, it is too late. He was endeared to those who knew him well, no less by his talent, capacity sincerity than by his gentle nature, kindness and courtesy. Few men had the capacity of endearing themselves so deeply to men of varied interests and stations and activities in life.

I deeply regret that I did not know, and therefore could not go to Danville to pay a last loving tribute to my dear friend.

With cordial regards,

I am very sincerely yours,

L. L. SIMPSON

Miss McMurtry thanks the Kentucky State Medical Association, and very deeply appreciates the sympathy and honor expressed in the beautiful tribute of flowers on the occasion of the death of her father, Dr. McMurtry.

LEWIS SAMUEL McMURTRY
1850—1924

LOUIS FRANK, M. D., F. A. C. S.

Born in Harrisburg, the seat of the first capital of Kentucky on September 14th, 1850 of Scotch decent, reared and educated in the Blue Grass, the aristocratic section of the State, he died in Louisville, the seat of his labors for over thirty-five years, on February 1st, 1924.

The portion of the State where Doctor McMurtry was born was the earliest settled, in fact while the State was yet a portion of the Old Dominion known as Fincastle County, his forbears were among the pioneers who helped drive the Indians out.

Shortly before Kentucky became a State, Virginia established at this settlement the first seat of learning West of the Alleghanies. Through a large grant of land there was here founded Transylvania University, afterwards removed to Lexington. Transylvania was the fourth medical college to be established on this continent. It was here that Ephraim McDowell received his instructions in medicine. McDowell though never graduating in medicine finished his studies in Edinboro returning to practice in Danville, Kentucky where he later did the first Ovariectomy.

Danville was long the cultural center of the State and it was here that young McMurtry obtained his academic education, receiving his degree in 1870. His Alma Mater, Centre College, numbered many distinguished names among its alumni. Unquestionably the atmosphere in which he at this time lived must have fired his ambition and desires and have played no small part in determining him not only to study medicine, but to follow in his professional career along the same lines as the immortal McDowell. One can well visualize this youth, of hard-headed Scotch ancestry, receiving his collegiate training in such surroundings, living in the atmosphere of the traditions of such an historic centre, probably daily passing the home of McDowell and can readily comprehend that in the presence of such influences he would be fired with the desire to become a great abdominal surgeon. If these were his dreams, his ideals, his aspirations, we know only how well they were realized.

At Danville, McMurtry, also came early, most likely during his academic studies under the influence of Dr. John D. Jackson, a scholar, a student, a gentleman and a philosopher as well as a surgeon of distinction. Jackson himself was born and died in Danville and following the example of McDowell had also been a student in Edinboro and other famous European clinics. He was a surgeon of abili-

ty and with him as a preceptor McMurtry's early dreams became deep and lasting impressions. He read medicine with Jackson for a year or two, dissecting the human body and becoming well grounded in anatomy before entering medical college.

Is it to be wondered that he was enthusiastic in his studies or that he graduated after his course at Tulane with the honors of his class. His graduation in 1873 was followed by an internship at the old Charite where he was chief medical resident and during this time he presented several papers bearing upon important medical topics. His impress upon his professors during these student days was so great that he was invited to make, and made, the address to the graduating class two years later. Quite an honor at that time for so recent a graduate. At this early day in his career he manifested to a remarkable degree his qualities as a speaker and the address is a very choice bit of English, smooth and finished and was delivered in his inimitable style and manner, so well known to older members of this Society.

Returning after his graduation to Danville he took up the active practice of medicine and surgery which with a year's intermission during which time he taught anatomy in the University of Louisville, he continued in the community until he moved to Louisville in 1888. These were busy years. Although the demand on his time in general practice was very great he continued a diligent student of surgery and was one of the early converts to Listerism having been an early student of the work of Pasteur and a life long admirer of the great French scientist. During this period his surgery was not confined, as later, to abdominal and pelvic work as may be noted by his papers among which is the report of a successful ligation for aneurism of the subclavian artery and others upon general surgery.

As stated earlier in this sketch he had been much impressed with the work of McDowell and determining to confine his work to abdominal and gynecological surgery, which had become recognized as a distinct specialty as a result of Lawson Tait's studies in pathology, he made a tour to Birmingham and became a student of this great and incomparable master. His studies here were followed by return to his native State and soon perceiving that his work demanded a wider field of usefulness he removed to Louisville. The demands upon him were great, his reputation as a surgeon had already been made. He was at this time widely and favorably

known and his State Medical Association honored itself and him by electing him as its President in 1888.

At this time he was further brought into prominence as the consultant with Dr. David Barrow a member of this association in the case of Col. Wm. Cassins Goodloe, who had been wounded in the abdomen as a result of a personal encounter, famous in the annals of Kentucky. McMurtry had the day previously operated on a negro man with an intestinal gun shot wound saving his life. He urged similar treatment of Goodloe, but the Counsels of Doctor Conner of Cincinnati prevailing no operation was done and Goodloe lost his life. Conner had insisted upon the treatment then in vogue, a survival of the treatment of such wounds during the Civil War, opium and rest. The medical profession seems always to have been as much of a slave to precedent as is the legal profession.

It was about this time in his professional career that McMurtry became the intimate of Howard Kelly and Joseph Price. With these two he was most active in Society work and in promulgation of the newer concepts of the pathology of the female pelvis and its treatment and in preaching the doctrine of aseptic surgery. His reputation was international and he took a very prominent part in medical societies, his discussions being at all times forceful, logical and convincing. The early advances in American surgery, its rapid strides and the marvelous development of abdominal and general surgery was in a large measure due to these pioneers, all brilliant operators and teachers, blazing the trail which we now so easily tread.

McMurtry had become internationally known ten years before this period as a result of his labors not only in establishing the claims of McDowell to priority in the field of Ovariectomy but also in taking up the work of his preceptor Dr. Jackson in fostering the erection of a Memorial to the great McDowell. Jackson had died and the task being taken up by the energetic McMurtry was brought to fruition by him, as a result of which in 1879 there was a handsome monument erected which was unveiled and dedicated in May 1897. This work required indefatigable labor and much correspondence which extended not only over America but also to Europe. This labor in itself was a tremendous undertaking for a young man and brought him to the notice of the profession the world over.

In 1890 McMurtry was called to the chair of abdominal surgery and gynecology in the Hospital College of Medicine which chair he filled with distinction, being shortly made

*Prepared for the Transactions of the Southern Surgical Association.

President of the faculty occupying these appointments in the school until it was merged with the University of Louisville in 1910. He was most active in bringing about the merger of the medical college in Louisville and became President of the Medical Department of the University of Louisville remaining as such until the time of his death.

Of most genial disposition he was quick to resent what he deemed a wrong or an injustice. A friend of the young striving beginner he demanded merit and hard work to maintain his support. Cultured and courtly in manner, he was a raconteur of the rarest order and loved nothing better than association with congenial fellowmen. He was, as all great men are, a lover of good literature and of the poets. His life and work was in itself a poem, his operations were epics. He was a brilliant conversationalist and his travels and reading made him a most interesting companion. With a most retentive memory for details a wide experience and catholic associations his reminiscences were most entertaining and we, his close friends at home tried often to prevail upon him, but without success, to write his memoirs. Such would have been a classic.

He was particular in dress as he was in choice of language and with his charming manner he was often called upon not only to to preside at meetings but to make many addresses public and professional.

As a surgeon of keenest judgement, as an operator of brilliant and marvelous technique, a diagnostician of wonderful acumen, insight and sound reasoning, McMurtry had no superior and few equals certainly not in pelvic surgery. His early work with that of Price and Kelly have left their mark upon many of our leading surgeons today, and their teaching and clinics have leavened the domain of American Surgery of which we are so justly proud. The ear-marks of their work is still to be seen in some of the world's most famous clinics.

Doctor McMurtry in addition to his membership in the American Medical Association of which he was President in 1905-6 was also an active member of his State and County Society, a Fellow of the British Gynecological Society of the Edinboro Society of Obstetricians, one of the founders of the American Society of Obstetricians and Gynecologists, of this, the Southern Surgical Association, also of the American College of Surgeons in which he took a most active interest. He was a member of the American Surgical Association and at the time of his death was President of the Kentucky State Board of Health which post he had held since 1919.

During the great world war, he organized

the first unit in Kentucky that saw oversea duty. He was appointed by the Surgeon General as Military Aid to the Governor which post he filled until its duties became too onerous.

As a member of this society he was active in its work and wise in its Councils. The "Cavalier" (and this cognomen fitted him so well) will be sorely missed and it will be many a day ere we will know his like.

His illness was of short duration as he would have wanted it. Upon Saturday he was with a few of his friends, myself included at a meeting of what we called "The Council". He remained later than usual, in fine fettle, excellent humor, scintillating with brilliant conversation. That evening he awoke with a chill and four days later had left us.

"Like one that draws the drapery of his couch about him and lies down to pleasant dreams."

JEFFERSON COUNTY MEDICAL SOCIETY MEMORIAL SERVICES

Memorial services in honor of Dr. Lewis Samuel McMurtry, widely known Kentucky physician who at the time of his death, February 1, was president of the State Board of Health, was held Monday evening, March 3, at 7:30 o'clock in the auditorium of the Louisville City Hospital. Dr. J. B. Lukins, president of the Jefferson County Medical Society, under whose auspices the services was conducted, presided.

The meeting was open to the public, as well as to the medical profession as a whole. Students and faculty members of the University of Louisville attended the meeting in a body. Friends and acquaintances of the late Dr. McMurtry were especially invited.

Dr. McMurtry was for many years president of the faculty of the University of Louisville. He also was the president of the medical staff of the Norton Memorial Infirmary, and served as a president of the American Medical Association. He was a member of a number of surgical and scientific societies in London, Paris and Berlin.

Dr. Lukins was chairman of the arrangement committee for the memorial services, other members being Drs. C. G. Lucas, R. H. Davis, H. A. Cottell, G. A. Hendon and E. L. Henderson.

Dr. C. A. L. Reed, Cincinnati spoke on Dr. McMurtry, "As I Knew Him."

Dr. J. G. Sherrill spoke upon Dr. McMurtry "As A Friend" and Mr. Y. E. Allison, "Dr. McMurtry, As a Citizen." Reminiscences given by Dr. Cottell.



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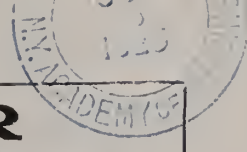
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ANNUAL NUMBER

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JUST READY

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Pathologic physiology has formed the basis of the presentation of the section on the heart. For this reason the fundamentals of the new physiology of the heart and circulation have been included, pointing out their bearing on the interpretation of physical signs. Throughout the work, however, the point of view of the clinician has been maintained, and emphasis placed on simple methods of diagnosis. There are, of course, chapters on radiographic examination, on blood pressure determination, and on other graphic methods of cardiac diagnosis.

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KENTUCKY MEDICAL JOURNAL

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No. 7

THE PROGRAM

With the consent of the Daviess County Medical Society, the Seventy fifth Annual meeting will be held at the Brown Hotel, Louisville, Oct. 5, 6, 7, and 8th. The Preliminary program is published elsewhere in this issue.

The reading of this program will indicate that it has been so arranged that it will mean to the profession an excellent post-graduate course. It was prepared, and the essayists were largely selected, by Drs. Robert L. Woodard, the President-elect, and M. J. Henry, the active members of the Committee on Scientific Work. The success of the third day's meeting last year was received so generously by the members of the association that the committee has determined to continue it this year, and many of the best and most practical papers will be read on Thursday. The House of Delegates meets on Monday, and the Scientific Session carries through the three days—Tuesday, Wednesday and Thursday. The committee is especially anxious that the members come prepared to discuss the various subjects which will be very briefly presented by the essayist. Practically all of the papers are already in the hands of the Secretary, and all of the essayists will be present.

The Council has provided for two evenings of special topics. Dr. William A. Pusey, of Chicago, the immediate past President of the American Medical Association, will deliver the annual oration on Wednesday evening. Dr. Pusey needs no introduction to the medical profession of Kentucky. A former Kentuckian, the son of a great Kentucky physician, the grandson of the pioneers who helped to blaze the trail across the Cumberland, Dr. Pusey is one of the leading medical statesmen of America. His profound study of medical education and medical economics especially qualifies him to bring out a message at this time that will be full of interest and value to every listener. On Tuesday night, under the chairmanship of

Dr. Sherrill, a Surgical Program of public interest has been arranged. Either Dr. Frederic Cotton, of Boston, Dr. Fred S. Rankin, of Lexington, and Dr. Barnett Owen, of Louisville, will deliver illustrated, timely addresses that will be of tremendous value to all of us.

The Oration in Surgery will be delivered by Dr. John H. Blackburn, of Bowling Green. This is the only statement that is necessary to assure the attendance of that Session of every physician who can be present.

The Oration in Medicine will be delivered by Dr. Virgil Gibney Kinnaird, of Lancaster. Dr. Kinnaird has ably served as councilor for his district, and is the son of one of the most distinguished and honored physicians in the state. He is practicing medicine in its broadest and best sense, and his message will be worth hearing.

The committee has been fortunate in drafting into service a large number of members of the profession outside of Louisville, and the program will be of general interest to every practitioner. The Louisville essayists have kindly consented to appear at the last moment, as preference was given to out in the state members.

For the past four years there has been increasing interest in the organization of the Women's Auxiliary of the Kentucky State Medical Association. Those who were present last year will remember the inspiring meeting of mothers, wives and daughters of physicians at Louisville, and the year before at Crab Orchard Springs. Under the President, Mrs. Graham Lawrence, of Shelbyville, this organization has been functioning with increasing activity throughout the year. In many county societies the ladies connected with the profession have had basket dinners, and have, in other ways, contributed to the success of the program. In other counties special drives have been put on to secure subscribers to Hygeia, the national health magazine. It is recog-

nized that this magazine should be in the home of all thoughtful readers who are interested in the preservation of their home, their families, and the community's health. The members of the auxiliary, also members of other women's organizations, naturally carry to them the objective and interest of the profession and of the public health. It is probably in this way that they are doing the greatest work. Special entertainment features will be arranged for the ladies in Owensboro, and it is hoped that Kentucky will have a large proportion of the women of the profession in attendance, as has been found so desirable in many other states.

With this meeting Kentucky will have completed three-quarters of a century of medical organization. This session promises to be the most interesting in every way that has ever been held. The intrinsic merit of the program will make it worth while for every medical man in Kentucky to be present.

PLEASE READ REPORT

On other pages in this issue will be found the Constitution and By-Laws of the Kentucky State Medical Association, as adopted in 1902 at Paducah, with all the amendments that have been made since. Members of the House of Delegates are especially urged to familiarize themselves with it, for it will be found interesting reading by every one who receives the JOURNAL.

It is especially important that the reports of officers, and particularly the financial report of the Secretary and Treasurer, as audited, be studied in detail by every member of the association. From time to time there has been some criticisms after the meeting of financial items. Criticism then is largely futile. The officers of the association can expend no money except with the approval of the House of Delegates, and the time to consider expenditure is before and during the meeting. In the auditor's report there will be found an exactly audited statement of every penny expended. The House of Delegates will be completely in charge of the activity of the association and can stop any expenditure which they disapprove. In the same manner they may inaugurate any activity which they consider a benefit to the profession or the people of the state. It will be noted that the expenditures have practically equalled the income and that our reserve is being reduced. This will warrant the active study of the splendid business men who

constitute the House of Delegates. The Kentucky State Medical Association is the most democratic organization in the world, and of course is successful only in proportion as it expresses the will of the members.

It is suggested that every local Society interested in any particular activity which the association has undertaken should consider and talk the matter over fully with their delegates that their views may be presented to the House of Delegates.

Ample time has been arranged for the meeting through the House. Reference committees will be appointed by President Cowan for the consideration of practically every phase of professional activity.

DAVIESS COUNTY MEDICAL SOCIETY

The profession of the State owes a debt of gratitude again, as it so frequently has in the past, to the generous and unselfish attitude of the Daviess County Medical Society in the matter of the Seventy-fifth Annual meeting. No one who heard the cordial invitation extended to the House of Delegates last year will ever doubt the sincere desire of the Daviess County profession to entertain the Association again. Those of us who know Owensboro and Daviess County know that they could now take care of us in the same complete and beautiful manner they have done three times previously in the history of the Association, but unfortunately in the invitation the emphasis was placed so definitely on the completion of the new hotel that the news of the failure to get it through in time to be occupied by the meeting had made it extremely doubtful whether the attendance would be worthy of the host society in the Daviess County capitol. After the Council had made a careful investigation in the matter, its conclusions were submitted to the Daviess County profession with a recommendation that a called meeting be held in Owensboro on Saturday, October 3rd, for the sole purpose of adjourning to meet at the Brown Hotel in Louisville for the regular sessions beginning on the following Monday, October 5th. The meeting in Owensboro will be entirely informal and is held simply to conform to the constitution.

The Seventy-fifth Annual session will be held at the Brown Hotel in Louisville beginning October 5th and continuing through the 8th. It will be known as the Owensboro session as a tribute to the fidelity of the Daviess County Medical Society. The Council desires it to be understood that this is not the regular triennial Louisville session, but is in reality the Owensboro session adjourned to Louisville.



Daviess County Medical Society

STANDING—S. P. OLDHAM, I. J. HOOVER, G. L. BARR, O. W. RASH.
 2D SITTING—J. H. THORPE, F. M. SHERMAN, J. T. DIXON, J. C. HOOVER.
 1ST SITTING—P. D. GILLIM, J. W. CLARK, J. R. MCGARY, C. M. RICE.

KEEPING UP

If we compare the progress in medical practice and education of to-day with that of twenty years ago, we wonder what will be the nature of the curriculum of the medical school twenty years hence. So much of value is being added to our medical knowledge from day to day that to "keep up" with the same is a problem with which every practitioner has to deal. The medical graduate of to-day leaves his school without the impression that he "knows it all" and that he is "through with it." Instead he realizes that he is just beginning and often the wise student and even the practitioner of many years goes back for a thorough review in order that they may successfully grasp the newer knowledge.

In this connection, the writer wishes to call attention to the revised edition of Cunningham's "Anatomy" published by William Wood & Co., New York, which every physician should have in his library. A thorough knowledge of this fundamental branch of medicine is absolutely essential for intelligent

and successful practice. Every physician should use his knowledge of anatomy and refer to it repeatedly until he becomes as familiar with it as the streets of his own town. The above mentioned book is well illustrated and the material is logically and clearly arranged. The revision and additions to this work make the review of this essential fundamental a very pleasant one.

PURE FOOD AND DRUGS

In the regular course of inspection of food establishments in Kentucky, the Bureau of Foods, Drugs and Hotels of the State Board of Health of Kentucky, during the year 1924, inspected 109 poultry houses in seventy-one counties of over 13,000 cases a week.

Of these 109 produce houses, 102 were found to be complying with the law in full in regard to the candling of eggs. By special co-operative arrangement with the produce dealers of this state, an intensive investigation of the handlers of eggs was begun on July 15, 1924, and was continued until January 1, 1925.



Daviess County Medical Society

SEANDING—W. F. STIRMAN, S. W. BARNHILL, J. N. FIRELINE, C. J. LOCKHART, W. S. GILMORE, J. A. NELSON,
D. M. GRIFFITH, S. W. ELLIS, J. H. HARRISON, R. E. GRIFFIN, M. H. WALKER, J. GLAHN.

SITTING—A. KIRK, R. W. CONNOR, J. D. STEWART, R. L. SHROEDER, S. J. HARRIS, W. L. TYLER, ED BARR, A. L. KINCHELOE,
A. J. GORDON, A. B. FOSTER, A. W. DAWSON.

A NEW DICTIONARY

The recent deluge of new terms in the literature seems of the American Illustrated tenth revision of the American Illustrated Medical Dictionary by W. A. Newman Dorland, published by W. B. Saunders Co., of Philadelphia, and consequently 2500 new words make their first appearance in this edition. A thorough revision of the terminology of dentistry and pharmacy and addition thereto receive particular emphasis.

The dictionary satisfies the requirements of the student and the practitioner and merits the attention of all medical men. The important features of pronunciation and derivation together with a simple and comprehensive system of procedure have received careful attention. The illustrations tables, etc., are of great valuable aid and from a ready source of information. Under the more important headings a considerable amount of collateral descriptive matter has been included. For instance, under each drug are

given its composition, sources, properties, uses and dose; under the more important diseases an account of their etiology, symptoms, etc.; under the principal organs, a description of their structure and function.

Every day in current literature new words, new phrases and new technique are met with. These are comprehensible only when a standard, up-to-date dictionary is available. Dorland's dictionary contains all the new and complete terms in Surgery, Dentistry, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc., with the pronunciation, derivation and definition. It includes a new and elaborate tables of arteries, muscles, nerves, veins, etc., posologic tables, eponymic tables of diseases, operations, signs and symptoms, stains, methods of treatment, etc.

If you are considering buying a new dictionary, this volume will give valuable service and can be procured from the publishers for \$7.50.

THE SOUTHERN MEDICAL ASSOCIATION MEETING

The various committees appointed in connection with the meeting of the Southern Medical Association in Dallas, November 9, 1925, report very satisfactory progress.

It is especially gratifying to know the hotel committee has already succeeded in having reserved for guests more than 1,600 rooms in the leading and best hotels of Dallas. This insures you that no matter how great the attendance, each one will be comfortably and suitably provided with proper hotel accommodations. This settles a question which has not concerned the doctors of Dallas, who are acquainted with local facilities, but which has been raised by prospective visitors.

For the first time in its history the association will have all its activities housed in one building. The new educational building of the First Baptist Church on the corner of St. Paul and San Jacinto streets will be completed long before November and will have a sufficient number of assembly halls for the various section meetings. The large auditorium with its splendid acoustics gives ample room for all general sessions and the basement floor, easily accessible, will give more than enough room for all exhibits, commercial and scientific.

In connection with the associations' meeting in November clinics in all branches will be conducted in all Dallas' splendid hospitals, which contributes largely to its rank as a medical center of the Southwest. The bed capacity in the larger hospitals alone is in excess of 1,200. Over \$8,000,000.00 has been invested in hospital facilities; below is given some data on the different institutions located in the city:

BAYLOR HOSPITAL AND MEDICAL SCHOOL

The Baptist Memorial Sanitarium was opened in 1909, being enlarged in 1922 and the name changed to Baylor Hospital. It is the largest sanitarium in the city, having a capacity of 432 beds. One hundred graduate nurses and one hundred and sixty-five training nurses are employed. The capital invested is in excess of \$3,000,000, the hospital being operated by the Baptist denominations of Texas.

While the main plant of the Baylor University is located at Waco the schools of Dentistry, Nursing, Medicine and Pharmacy are in Dallas. The enrollment is in the neighborhood of 1,000. The

Medical Department will be in session during the S. M. U. meeting and all its clinics open to visiting physicians.

ST. PAUL'S SANATORIUM

This hospital was established in 1896. The original capacity was 219 beds, but an addition built in 1916 increased the capacity to 300 beds. Two hundred and fifty nurses are employed in the sanitarium. A nurses training school is operated by the Daughters of Charity of St. Vincent de Paul, who are also in charge of the new management of the main sanitarium. Investments in buildings and grounds are placed at \$1,750,000.

DALLAS SANITARIUM

The first 125 bed unit of this hospital is now under construction and will cost \$500,000. When completed the hospital will contain 500 beds and represent an investment of more than \$1,250,000. It was established and will be operated by the North Texas Methodist Conference.

PARKLAND HOSPITAL

This 250 bed hospital is operated by the City-County Board. It was established in 1896. Ten graduate nurses and seventy-two nurses in training are employed. It is estimated that the capital invested is in the neighborhood of \$1,000,000. Dr. Lane V. Cooke is the superintendent. A nurses' training school is operated in conjunction with the hospital. At the present time plans are being made to enlarge the school to take care of one hundred students.

FREEMAN MEMORIAL CLINIC

This free clinic was first established in the basement of the First Presbyterian Church in 1921. In 1924 the clinic was endowed by T. R. Freeman and a beautiful building was erected as a memorial to his wife and son. The clinic is absolutely free and handles an ever-growing number of patients. The building, together with the equipment, is valued at \$100,000.

HELLA TEMPLE CHILDREN'S HOSPITAL

Established in 1923 by Hella Temple for the treatment of crippled children. It contains fifty beds and employs five registered nurses, fourteen attendant nurses and twelve other employees. It is supported jointly by Hella Temple and the Scottish Rite bodies.

The Timberlake Sanitarium is a forty bed hospital, employing eighteen nurses and treating nervous and mental diseases. It is located on the Orphans Home road and represents and investment of \$75,000.

MEDICAL ARTS BUILDING

The story of Dallas as a medical center would not be complete without some mention of this nineteen story skyscraper, completed in 1924 at a cost of \$1,500,000. It was designed for and is occupied by the medical and dental professions. It is of Gothic Cross design, assuring both light and ventilation to every office. At the time the building was erected it was the tallest monolithic concrete building in the world. About 60,000 patients visit this building every month.

The medical profession of Dallas and of Texas warmly invites the Southern doctor and his wife to visit Dallas on November 9, 1925.

CURTICE ROSSER, M. D.,
For the Publicity Committee.

AT OUR HEADQUARTERS

The Brown Hotel has been selected as headquarters for the Seventy-Fifth Annual Meeting of the Kentucky State Medical Association.

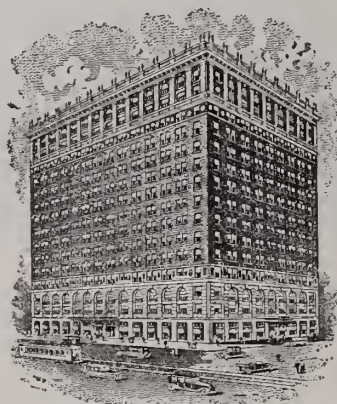
This new beautiful hotel has been given over completely for the use of the meeting and those in attendance are assured every comfort and convenience.

Sessions will be held in the main ball room. The commercial exhibit and registration booth are located on the lobby floor. The hotel has reserved sufficient room to take care

out-of-town guests, so please make your reservation.



COMMERCIAL EXHIBIT HALL ROOM BROWN HOTEL



BROWN HOTEL



LOBBY BROWN HOTEL



BALL ROOM BROWN HOTEL, MEETING PLACE OF THE
SCIENTIFIC SESSION

OFFICIAL ANNOUNCEMENTS

PROGRAM FOR THE KENTUCKY
STATE MEDICAL ASSOCIA-
TION, OCTOBER 5-8,
1925

TUESDAY, OCTOBER 6—9:00 A. M.

Call to Order by the President -----
Invocation ----- J. Rice Cowan, M.D., Danville
Address of Welcome ----- B. G. Hodge, D.D., Owensboro
Response to Address of Welcome ----- Hon. W. R. Miller, Owensboro
Installation of President ----- E. R. Palmer, M.D., Louisville
Address of President ----- R. L. Woodard, M.D., Hopkinsville
"Periodical Examination of the Apparently Well"
Report of Committee on Arrangements -----
----- R. E. Griffin, M.D., Owensboro

SCIENTIFIC SESSION

TUESDAY, OCTOBER 6—10:00-12:00 A. M.

1. The Eye in Systemic Disease ----- A. O. Pfingst, M.D., Louisville
2. The Diagnostic Significance of Abnormal Heart Sounds ----- E. F. Horine, M.D., Louisville

Special Order at 12:00

ORATION IN SURGERY

John H. Blackburn, M.D., Bowling Green

TUESDAY, OCTOBER 6—1:30 P. M.

1. The Clinical Significance of the Wassermann Test ----- J. D. Allen, M.D., Louisville
2. The Chemical Analysis of the Blood in the Diagnosis and Prognosis of Disease ----- E. S. Maxwell, M.D., Lexington
3. The Management of Acute and Chronic Colitis of Non-Protozoic Origin ----- Vernon Blythe, M.D., Paducah
4. The Medical Management of Thyroid Dysfunction ----- W. F. Boggess, M.D., Louisville
5. Diagnostic Value of Painful Areas (Lantern Slides) ----- Curran Pope, M.D., Louisville
6. Treatment of Diabetes Mellitus ----- R. Hayes Davis, M.D., Louisville

TUESDAY, OCTOBER 6—8:00 P. M.

1. The Surgical Treatment of Peptic Ulcer (Lantern Slide) ----- Fred S. Rankin, M.D., Lexington
2. The Problem of the Crippled, Motion Pictures ----- W. Barnett Owen, M.D., Louisville

WEDNESDAY, OCTOBER 7—9:00 A. M.

1. A Simplified Technique for Anastomosis of the Large Bowel ----- Frank P. Strickler, M.D., Louisville
2. The Use of Dyes in the Treatment of Disease ----- H. H. Hagan, M.D., Louisville
3. The Management of Benign Prostatism ----- S. C. McCoy, M.D., Louisville
4. Surgical Consideration of Tumors of the Breast ----- Guy Aud, M.D., Louisville
5. Enemata ----- Granville S. Hanes, M.D., Louisville

Special Order at 12:00

ORATION IN MEDICINE

Virgil G. Kinnaird, M.D., Lancaster

WEDNESDAY, OCTOBER 7—2:00 P. M.

1. Surgery of the Pancreas ----- Louis Frank, M.D., Louisville
2. Surgery in the Presence of Diabetes Mellitus ----- J. Garland Sherrill, M.D., Louisville
3. The Treatment of the Troublesome Fractures of the Humerus ----- J. G. Gaither, M.D., Hopkinsville
4. Diet in Health and Disease ----- C. G. Lucas, M.D., Louisville
5. Infant Feeding in Health and Disease ----- J. W. Bruce, M.D., Louisville

WEDNESDAY, OCTOBER 7—8:00 P. M.

Public Address ----- W. A. Pusey, M.D., Chicago

THURSDAY, OCTOBER 8—9:00 A. M.

1. Practical Points in Diagnosis of More Common Types of Skin Diseases ----- C. Brooks Willmott, M.D., Louisville
2. Obstetrics as a Specialty ----- Walker B. Gossett, M.D., Louisville
3. The Care and Delivery of the Pregnant Woman in Her Home ----- L. T. Minish, M.D., Frankfort
4. Radiation Therapy in Tumors of the Breast ----- Keith & Keith, M.D., Louisville

THURSDAY, OCTOBER 8—2:00 P. M.

1. The Relation of Infections of the Nose and Throat Disease and the Ear ----- Jos. D. Heitger, M.D., Louisville
2. Artificial Pneumothorax in the Treatment of Pulmonary Diseases ----- O. O. Miller, M.D., Louisville, Waverly Hills, San.
3. Operative Treatment of Infantile Paralysis ----- Orville R. Miller, M.D., Louisville

OFFICIAL CALL

The Seventy-Fifth Annual Meeting of the Kentucky State Medical Association to be held at the Brown Hotel, Louisville.

To the Officers and Members of the Component County Societies of the Kentucky State Medical Association.

A call meeting of the Kentucky State Medical Association will be held at Dr. R. E. Griffin's office in Owensboro, Kentucky, on Saturday, October, 1925, at 10 a. m. for the purpose of adjourning to meet in Louisville on Monday, October.

The Seventy-Fifth Annual Meeting of the Kentucky State Medical Association will convene in the Auditorium of the Brown Hotel, Louisville, on Monday, Tuesday, Wednesday and Thursday, October 5, 6, 7, and 8, 1925.

THE HOUSE OF DELEGATES

The House of Delegates of the Kentucky State Medical Association will convene at the Brown Hotel, at 2 p. m. on Monday, October 5, 1925.

FIRST GENERAL SESSION

The First General Session, which constitutes the opening exercises of the scientific functions of the Association will be held in the auditorium of the Brown Hotel, at 9 a. m., Tuesday, October 6, 1925.

THE COUNCIL

The Council will convene at the Brown Hotel, Monday, October 5, 1925, at 10:30 a. m.

THE REGISTRATION DEPARTMENT

The Registration Department will be open in the Brown Hotel from 10 a. m. to 5 p. m., on Monday, October 5, 1925; from 8 a. m. to 5 p. m. on Tuesday and Wednesday, October 7 and 8, and from 8 a. m. to 12 m., on Thursday, October 8, 1925.

COUNCILOR DISTRICTS

FIRST DISTRICT

V. A. Stille, Benton, Councilor.

Ballard	Fulton	McCracken
Caldwell	Graves	Marshall
Calloway	Hickman	Trigg
Carlisle	Livingston	Lyons

SECOND DISTRICT.

D. M. Griffith, Owensboro, Councilor.		
Breckenridge	Henderson	Ohio
Crittenden	Hopkins	Union
Daviess	McLean	Union
Hancock	Muhlenberg	Webster

THIRD DISTRICT.

J. H. Blackburn, Bowling Green, Councilor.	
Allen Cumberland	Metcalf
Barren Hart	Warren-Edmondson
Butler Logan	Simpson
Christian Monroe	Todd

FOURTH DISTRICT.

E. S. Smith, Hodgenville, Councilor.	
Bullitt Henry	Shelby
Grayson Larue	Oldham
Hardin Meade	Nelson

FIFTH DISTRICT.

W. E. Gardner, Louisville, Councilor.	
Anderson Franklin	Owen
Boone Gallatin	Spencer
Carroll Jefferson	Trimble

SIXTH DISTRICT.

R. C. McChord, Lebanon, Councilor.	
Adair Marion	Washington
Boyle Mercer	
Green Taylor	

SEVENTH DISTRICT.

V. G. Kinnaird, Lancaster, Councilor.	
Casey Lincoln	Russell
Clinton Pulaski	Wayne
Garrard Rockcastle	McCreary

EIGHTH DISTRICT.

F. A. Stine, Newport, Councilor.	
Bourbon Harrison	Robertson
Bracken Jessamine	Scott
Campbell-Kenton Mason	Woodford
Fleming Nicholas	
Grant Pendleton	

NINTH DISTRICT.

A. T. Bryson, Ashland, Councilor.	
Boyd Greenup	Magoffin
Carter Johnson	Pike
Elliott Lewis	Martin
Floyd Lawrence	

TENTH DISTRICT.

R. J. Estill, Lexington, Councilor.	
Bath Lee	Owsley
Breathitt Letcher	Perry
Clark Madison	Powell
Estill Menifee	Rowan
Fayette Montgomery	Wolfe
Knott Morgan	

ELEVENTH DISTRICT.

W. M. Martin, Harlan, Councilor.	
Bell Jackson	Leslie
Clay Knox	Whitley
Harlan Laurel	

CONSTITUTION AND BY-LAWS OF THE KENTUCKY STATE MEDICAL ASSOCIATION ADOPTED AT PADUCAH IN 1902 AS AMENDED

CONSTITUTION

ARTICLE I.—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Kentucky State Medical Association.

ARTICLE II.—PURPOSE OF THE ASSOCIATION

The purpose of the Association shall be to federate and bring into compact organization the entire medical profession of the State of Kentucky, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science, to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the

guarding and fostering of their material interest and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2.—MEMBERS. The members of this Association shall be the members of the component county medical societies.

Sec. 3.—DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Association.

Sec. 4.—GUESTS. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privileges of participating in all of the scientific work of that session.

ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegate elected by the component county societies, and (2) *ex-officio*, the officers of the Association as defined in Article VIII, Section 1, of this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interest of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eleven Councilors.

Sec. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The Officers of the Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session, and who has not been a members of the Association for the past two years.

ARTICLE IX.—FUNDS AND EXPENSES

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Session for publication and for such other purposes as will promote the welfare of the Association and profession.

ARTICLE X.—REFERENDUM

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

ARTICLE XI.—THE SEAL

The Association shall have a common Seal with power to break, change or renew the same at pleasure.

ARTICLE XII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such

amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS

CHAPTER I.—MEMBERSHIP

Section 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all the proceedings of the Annual Session, and shall be eligible to any office within the gift of the Association. PROVIDED, that no physician may become a member of any county society unless he signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentleman that I will not so long as I am a member of the Kentucky State Medical Association practice division of fees in any form; neither by collecting fees from others referring patients to me nor by permitting them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me nor will I utilize any man as an assistant as a subterfuge for this purpose.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the Annual Session in the respective bodies of this Association.

Sec. 3. No person who is under sentence or suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of membership shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings, until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by receiving a badge which shall be evidence of his reference to the roster of the society, he shall have right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION.

Section 1. The Association shall hold an annual session, meeting every third year in the city of Louisville, and the other two years at some point in the State fixed at the preceding annual session.

CHAPTER III.—GENERAL MEETING.

Section 1. The General Meeting shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions; and except guests, to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability or upon his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations and the entire time of the sessions as far as may be shall be devoted to papers and discussions relating to scientific medicine.

Sec. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

Sec. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done, it shall not be published.

CHAPTER IV.—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so

far as is consistent with the duties. But if the business interests of the Associations and profession require, it may meet in advance or remain in session after the final adjournment of the General Meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessments as provided in this Constitution and By-Laws shall be entitled to one delegate. In case the regularly elected delegate and alternate is unable to attend the annual meeting of the Association, the President of the county society may in writing appoint an alternate, who shall have the rights and privileges of a delegate.

Sec. 3. A majority of the registered delegates shall constitute a quorum and all of the meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to further ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers as well as home study and research and shall en-

deavor to have the results of the same utilized and intelligently discussed in the county societies. With these ends in view, five years after the adoption of the By-Laws no voluntary paper shall be placed upon the annual program or be heard in the Association which has not first been heard in the county society of which the author is a member.

Sec. 8. It shall elect representatives to the House of Delegates of the Medical Association in accordance with the Constitution and By-Laws of that body in such manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall upon application provide and issue charters to county societies organized to conform to the spirit of the Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies and these societies, when organized and chartered shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into Councilor Districts, and, when the best interests of the Association and profession will be promoted thereby, organize in each district a medical society, to meet midway between the Annual Session of the Association and members of the chartered county societies and none other shall be members.

When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Association and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committee may report to the House of Delegates in person, and may participate in the debate therein.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last General Meeting of each Annual Session, and shall pub-

lish the same in the JOURNAL.

CHAPTER V.—ELECTION OF OFFICERS

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, provided, however, that when there are more than two nominees, the nominee receiving the least number of votes on the first ballot shall be dropped and the balloting continue until an election occurs in like manner.

Sec. 2. Any member known to have directly or indirectly solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sec. 3. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 4. Nominations for President shall be called for by counties.

CHAPTER VI.—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and so far as practicable, shall visit by appointment, the various sections of the State and assist the Councilors in building up the county societies and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal the Council shall elect one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond for the trust imposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Association and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Association. He shall pay money out of the Treasury only on written order of the President, coun-

tersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of funds in his hands.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the program for and attend all meetings of the Association and of the House of Delegates and he shall keep minutes of their respective proceedings in separate record books. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him. He shall be custodian of all record books and papers belonging to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meeting, officers of their election, and committees of their appointment and duties. He shall act as secretary of the Committee on Scientific Work. He shall be editor of the *KENTUCKY MEDICAL JOURNAL*. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient it is desirable that he shall receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as

necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association for re-organization and for the outlining of the work for the ensuing year. At this meeting it shall elect a Chairman and Secretary and it shall keep a permanent record of its proceedings. It shall through its Chairman, make an annual report to the House of Delegates at such time as may be provided, which report shall include an audit of the account of the Secretary and Treasurer and other agents of this Association, and shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association, or under its control, with such suggestions as it may deem necessary. In the event of a vacancy in any office the Council may fill the same until the next annual election.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each Annual Session of the House of Delegates. The necessary traveling expenses incurred by Councilor in the line of his duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expenses in attending the Annual Session of the Association.

Sec. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates of the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society upon which appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profes-

sion and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council as such.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memorials of the Association and shall have authority to appoint such assistants to the editor as it deems necessary. It shall manage and conduct the KENTUCKY MEDICAL JOURNAL, which is the organ of the Association, and all money received by the JOURNAL, the Council or any officer of the Association, shall be paid to the Treasurer of the Association on the first of each month.

Sec. 6. All reports on scientific subjects and all scientific discussions and papers read before the Association shall be referred to the KENTUCKY MEDICAL JOURNAL for publication. The editor, with the consent of the Council for the district in which he resides, may curtail or abtract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication.

Sec. 7. All commercial exhibits during the Annual Session shall be within the control and direction of the Council.

CHAPTER VIII.—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Publication, Policy and Legislation.

A Committee on Medical Education.

A Medico-Legal Committee.

A Committee on Arrangements, and such other committees as may be necessary shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the President-elect shall be a member and Chairman, and the Secretary shall be a member and Secretary, and shall determine the character and scope of the scientific proceedings of the Association, subject to the provisions or the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented,

which shall be adhered to by the Association as nearly as practicable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and the enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with the profession and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence in local, state and national affairs and elections. Its work shall be done with dignity becoming a great profession and with that wisdom which will make effective its work and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such times as may be arranged during the Annual Session.

Sec. 4. The Committee on Arrangements shall consist of the component society in the territory in which the Annual Session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates and of their respective committee, and shall have general charge of all arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Sec. 5. The Medico-Legal Committee shall consist of three members, one of whom, the Chairman, shall be elected by the Council for five years, and the Secretary and Treasurer shall be the other two members *ex-officio*. This committee shall select and fix the compensation for an attorney, who shall act as General Counsel, and if required, additional local counsel. The Association through this committee shall defend its members who are in good standing against unjust suits for malpractice.

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES

Section 1. The assessment of five dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, lists of

delegates, and list of non-official physicians of the county to the Secretary of this Association on the first day of January in each year.

Sec. 2. Any county society which fails to pay its assessment, or make the report required, on or before the first day of April in each year, shall be held as suspended, and none of its members, or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 3. All motions or resolutions appropriating money, shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates.

CHAPTER X.—RULES OF CONDUCT

The principles set forth in the Principles of Ethics of the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

CHAPTER XI.—RULES OF ORDER

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made with the aid of the Coun-

cilor of the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, which, upon a majority vote, may permit him to become a member of an adjacent county society.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in the state, his name, upon request shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living in or near a county line may hold membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material conditions of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the

first benefit of such labors. Official position and other preferences shall be un-
stintingly given to such members.

Sec. 12. At the time for the annual election of officers each county society shall elect a delegate or delegates to represent it in the House of Delegates if this Association in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association at least sixty days before the Annual Session.

Sec. 13. The Secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, on the first day of January of each year, or as soon thereafter as possible, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 14. The Secretary of each county society shall report to the KENTUCKY MEDICAL JOURNAL full minutes of each meeting and forward to it all scientific papers and discussions which the society shall consider worthy of publication.

CHAPTER XIII.—AMENDMENTS

These By-Laws may be amended by any Annual Session by a two-thirds vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

The Conference of State Sanitary Engineers, which was in session April 25 to 27, elected Richard Messer, Engineer, Virginia State Board of Health, as chairman and F. C. Dugan, chief engineer, Kentucky State Board of Health, as vice-chairman. A. P. Miller, Sanitary Engineer, U. S. Public Health Service, Washington, D. C., was re-elected secretary treasurer. If the A. W. W. A. meets at a convenient place the conference voted to meet the early part of the same week next year.

REPORT OF THE COUNCIL

To the House of Delegates:

The attention of the House is called especially to the report of the Secretary and Treasurer showing that the net balance on September 1, 1925 is \$4,996.07 as compared with the net balance of \$1,667.67 as the same date last year. However, there are outstanding accounts for the Medico-Legal Committee of something more than \$1,200.00. These accounts are in process of adjustment, and it is hoped that some of them may be reduced. Legal fees, as well as other costs, seem to be growing gradually higher.

The three major activities of the Association are the publication of the JOURNAL the medico-legal and medical law enforcement work, and the routine work of the Association.

It will be noted that the income of the JOURNAL was \$7,477.22 and that the entire expense of its production was \$6,660.07, so that it is self-supporting. It is of interest that the conduct of the Journal in 1906 cost \$5,152.42 and there was a deficit of \$1,452.72 in that year. It has again been necessary for the editor to arbitrarily hold the size of the JOURNAL within its income, and this has resulted in a number of unpublished articles being left on hand at the end of the year again. The policy of the Association since the organization of the JOURNAL has been to publish all papers read before county societies which are sent to the editor by their respective secretaries. This policy has, naturally, been one of the largest contributing factor to improve medical service to the people of the State. A study of the progress of the profession from year to year, as indicated by the pages of the JOURNAL, can only afford gratification to every thoughtful physician and student of affairs. The House of Delegates should determine whether a sufficient additional income should be provided for the JOURNAL to enable it to continue this constructive policy or whether it should become, as most state or privately owned medical journals are, a selective organ which would publish only such material as the Council should select from the offering made to it. The Council recommends that at whatever cost the policy that has prevailed since the establishment of the JOURNAL should be continued. The editor estimates that it would cost \$2,000 more to have included in the JOURNAL all the articles submitted this year.

The routine work of the organization, including the salary of the Secretary, has cost about the same amount for the past several years. There was a slight reduction in this cost last year from the preceding three years.

The Association for the past four years has co-operated with the State Board of Health in the enforcement of the medical practice and other health laws. For the two years the expenditure of the Association, under this co-operation, was \$2,400 a year, but additional income to the State Board of Health enabled us to reduce the cost of this co-operation last year to \$1,500 and, after conference between the members of the Council and the State Board of Health, it was reduced this year to cost the Association \$300. The Council recommends that this co-operation be continued at a cost not to exceed \$1,200. Under our system of court procedure, the constantly changing county commonwealth attorney, elected under our political system of the selection of such law enforcement officers, unfortunately, frequently result in the selection of men who are not sufficiently energetic or competent to enforce the medical and health, or, in fact, any of the other laws of the Commonwealth. Realizing, as physicians do, the special importance of the enforcement of the health and medical laws, it is natural that our attention should be centered especially in neglect of their enforcement. In those sections of the State where the physicians have joined with other progressive organizations of citizens in the selection of really competent law enforcement officials and judges, there has been no cause for complaint. Complaints of evasion of laws through the courts come from the poorly organized counties and districts which continue to select their officials as rewards for political service or because of the predominating influence of some special interest and these conditions can only be overcome by the education of the elector as to the importance of the election of competent officials. During the past year, the services of our attorneys have been called for in more than 300 cases and their efforts, aided by the commonwealth and county attorneys in many sections of the State, have resulted in the largest number of convictions of violations of the health and medical laws that has occurred in any year since 1893, in which year the law first became effective and a large number of quacks were prosecuted and driven from the State.

Contrary to the expectations of the Medico-legal committee the cost of the work of this Committee continues to increase. Last year the attorneys fees amounted to \$3,080.55. This year they have been reduced to \$2,625.00. We regret that outstanding suits and claims do not warrant us in hoping this favorable condition to continue. This means that unjust blackmailing malpractice suits continue to be brought against reputable members of the profession in about the same number

as when this work was first organized. The depreciation in value of the dollar makes the cost of defending these suits relatively higher because fees have increased as have all other costs of living. The Council cannot find words to express its appreciation of the effective work, of especially, Dr. Lukins, Chairman of this committee, and Honorable Fred Forecht, its general council, and no mention of this work would be complete without again expressing gratitude for the many years of service of Dr. Moren, as Chairman of this Committee. It should be clearly understood by the profession that the Association furnishes attorneys only for the defense of unjust malpractice suits. The report of the Committee, which will be made in detail, will show again that several verdicts have been rendered against physicians but the Committee is of the definite opinion that these verdicts were in each instance unjustifiable. It is very important that physicians generally carefully consider the character of such suits as have been brought because the smallest legal precaution taken at the right time would have prevented the possibility of an adverse verdict in every one of them. The whole subject of malpractice procedure has become definitely technical and, in order to avoid becoming victims of its operation, the profession must acquaint itself with these procedures as it does with the other complexities of modern medical practice.

We repeat this year that between the value of the major activities of the Association, the Council finds itself unable to discriminate. We do not see how either of them could be abridged at all, and there are a number of other things that the Association should do that it finds itself unable to do upon its present income. Consideration of methods for the increase of the income of the Association was asked of the House of Delegates last year, and delegates from the various counties were urged to discuss these matters at regular or special meetings of their societies before coming to Owensboro meeting so as to secure the consensus of opinion of the entire profession.

During the year, the Council regrets that it has found it necessary to prefer charges before the State Board of Health against a number of physicians who have been convicted in the State or Federal courts for violation of the narcotic or prohibition law. The Council feels that the administration of these laws has been made unnecessarily irksome to the competent, honest, self-respecting members of the medical profession by their continued violation by a very small minority which has continued to bring reproach upon the entire

profession by their disregard of the plain purposes and provisions of the law. Regardless of individual opinion, it should be understood by every physician in Kentucky, and should be made plain to the public, that, under the federal law, habituation to narcotics is not a disease that should be treated by providing narcotic and that alcohol can only be perscribed legitimately for patients who are actually under treatment by the physician writing the prescription for a definite disease, in which alcohol is indicated. Several of the individuals whose licenses have been revoked upon the charges preferred by the Council have dispensed larger quantities of narcotics in the proven cases against them than are dispensed legitimately by the entire medical profession of the State. Such a condition can not continue and the Council desires to give notice now that, acting under the repeated instructions of the House of Delegates, it will continue to prefer charges looking to the revocation of the right to practice medicine in the State of every member of the profession who is found guilty in a State or Federal court of violation of either the Harrison or Volstead act. It can not be repeated too often that the officials charged with the enforcement of these laws can not relax in their strict adherence to provisions, which seem to most of us unnecessary, until people have been protected from the class of ignorant or soft-headed and soft-hearted physicians who pander to this trade in violation of the law.

The membership of the state and county societies for the year continues about the same as for each of the past 4 years. We have called the attention of the House from year to year to the fact that about 400 of our physicians, who are in active practice and who are actively interested in our work, are in and out of the Association from year to year and, in this way, fail to keep in touch with movements for the betterment of the profession and the public health, and we, again, urge the House to take steps at this session for an increasingly strict adhesion to business methods in the conduct of affairs of the Association so that the members will understand that it is incumbent upon themselves to pay their duties and meet their other obligations to the county and state societies as promptly as they pay their taxes or insurance. During the year, a number of physicians who have failed to keep themselves in good standing have found that they had to bear the entire expense of their own protection from malpractice suits because they had delayed sending in their dues and were not in good standing. Acting under your instructions last year, members who become delinquent can

not be defended for any malpractice suit which has been brought prior to that delinquency. The council suggests this again so that the members in every county may be given notice that their duties should be paid promptly on January 1st of each year.

During the last session of the General Assembly vicious attacks were made upon our medical and health laws from many sources. The profession is thoroughly familiar with these attacks and their efforts, combined with those of the progressive citizenship of the State, succeeded in defeating all of them. The profession will continue to win such victories just so long as it deserves to win them. Members of the House of Representatives and the Senate who supported our efforts should be commended by the profession, and similar progressive senators and representatives should be elected for the next General Assembly.

The victory of the profession, however, should be realized as squarely placing upon its shoulders responsibility for improvement in public health. Here and there physicians are heard to complain that activities along modern sanitary lines are depriving the profession of a large part of its natural income. Such complaints come from men who are unworthy of membership in our ancient and honorable profession. That the death rate from typhoid fever has been reduced 60 per cent, in the last 14 years; that diphtheria has been robbed of its victims by the early and prompt administration of antitoxin; that the death rate from tuberculosis has been cut in half, that the preventable infectious diseases are constantly decreasing, is a matter in which every worthy physician takes pride. Larger and more satisfactory incomes are being received by the progressive members of the profession who are qualifying themselves to, and who are, making systematic physical examinations of the apparently well, who are undertaking the dietetic and hygienic management of their families, who are immunizing their patrons biennially from typhoid fever and giving the children in the practice permanent immunization from diphtheria with diphtheria toxin-antitoxin, and who are undertaking the sanitary supervision of the homes of the families in their practice with a view to seeing that they are securing pure drinking water and have safe and sanitary methods of sewage disposal. These life saving services, when furnished by competent men, are of recognized value to the individuals who secure them, and they are paid for far more gladly and regularly than the merely remedial service of past decades. Charts will be exhibited at this meeting so show continued progress in public health

and in the practice of medicine in Kentucky. The death rate continues to be reduced. In this connection, it is important that our attention again be called to the historic fact that before 1888 anyone who desired could practice any branch of the healing art anywhere. The State was overrun with traveling quacks and empirics as well as the stationary variety. The columns of our newspapers contained more columns of quack advertisements than of reading matter. It is important to remind our newspapers and legislators that before 1888 the death rate was practically three times its present rate. This is the best answer to those who say reduce the standard of requirement for those practicing the healing art. It is important to remember, also, that more hospitals are being built, more effective work is being done by the profession than ever before, and, if the counties which are complaining about a shortage of physicians will recognize their value and make provisions for their proper compensation, and well at the same time stop talking about bad roads and devote their time and money to the building of good roads, so that their people are made accessible and will develop schools where their own and their physician's children may be educated, they will find no difficulty in securing first class medical service.

During the past year, many more county societies have held diagnostic clinics along various lines than were endorsed in our reports for the past three years. This has been particularly true in tuberculosis and no other factor has been of greater assistance in reducing the sick and death rate from this serious disease than these clinics. Careful investigation has shown that the climate of Kentucky is quite as good as that of any other state. This has enabled our splendidly equipped and conducted State Tuberculosis Sanatorium at Hazelwood, in the suburbs of Louisville, to be conducted at a less per capita cost than any other similar institution in the United States. It is important for the medical profession of Kentucky to realize that patients receive at this institution as a cost to each of them of \$15.00 per week quite as good and in many cases much better, attention and treatment than is given them at other sanatoriums in distant states at multiples of this cost. We still feel it is unfortunate that no provision has been made by the General Assembly in this institution for the free treatment of cases occurring among our indigent population, but it is of importance that every physician remember that patients who are able to pay \$15.00 a week can be as well treated at Hazelwood as any other tuberculosis sana-

torium in the country.

A number of clinics for crippled children and adults have been held by various societies and the Kentucky Crippled Children's Association associated with the Rotary Clubs and Shriners and other similar patriotic organization, is doing a splendid work in this field. The General Assembly made an appropriation for the support of this activity and, under the leadership of Kentucky, other progressive states have fallen in line in the relief of these unfortunates.

Co-operating with the State Board of Health many societies have held trachoma and other eye, ear and throat clinics. The profession and people may be congratulated that trachoma is a rapidly disappearing disease. We can confidently expect, with the same energy on the part of the profession and welfare organizations for another decade, this serious disease, with its resulting economic and social losses, to be as rare in Kentucky as in any other state. In 1912, Dr. John McMullen, after a careful survey of the state, reported that there were more than 60,000 cases of the disease within its confines. We are confident that there are now less than 4,000 but many of these have to be hunted out individually and each of them is a contributing factor to the infection of others so long as they exist and the campaign cannot be relaxed until the last case is relieved.

Under the operation of the Sheppard-Towner law, as adopted and approved by two consecutive sessions of the General Assembly, and as repeatedly approved by this Association, numerous clinics for pregnant women and young babies have been organized throughout the State. Everyone of these has been held with the cooperation and under the management of the county medical societies. No work which has ever been undertaken by the profession has proven so popular nor more profitable. For the first time in the history of the State, as a result of this systematic campaign, increasing numbers of pregnant women are under constant medical supervision and healthy babies and children are being constantly brought to physicians' offices so that tendencies toward disease may be recognized and corrected. These activities of the profession are easily the most important social activities for the betterment of the State. We are improving health conditions faster than roads are being built or than schools are being adequately and properly provided with buildings or teachers. We have the most difficult task of the three and it is being done for less than a hundredth of the cost of these other activities of the State and is being done more adequately

and more rapidly. Members of the profession should constantly be bringing this to the attention of the public so that they will understand that we are interested in the public welfare and that we are making practical all the discoveries of modern science that have a bearing on our health problems, with a view to keeping our people efficient during their normal length of life. It is urged that county societies hold public meetings in various sections of each county where the public may be educated in regard to these necessary measures and that clinics be held by the county societies for the administration of prophylactic vaccines for the indigent. If this were done actively in every county, it would reduce our death rate to that of other states in the Union that do these things. It should be constantly emphasized that good roads and good school will only be of value to healthy children and grownups.

The financial report by the Secretary and Treasurer is in great detail, and we trust every member, and especially every member of the House of Delegates, will read it carefully and thoughtfully.

It should be realized by the members of the Association that the JOURNAL has been published because of the continued active support of our advertisers, and we desire to again urge the House of Delegates to take steps to bring the importance of the patronage of these advertisers before the various county societies as advertisers pay for the publication of the JOURNAL. The value of the JOURNAL to every doctor who reads it is apparent. This Association guarantees the financial integrity of the advertising columns of the JOURNAL. For these reasons, we feel we have a right to ask our members to patronize the advertisers, or, at least, to give them the opportunity to secure their patronage, other things being equal.

These same remarks apply to the exhibits at the annual meetings. These exhibitors pay the expense of the annual meetings. They are carefully selected from amongst a much larger number of applicants by a special committee of this Council and their exhibits before us the various improvements in medical and surgical technique in a way that would be impossible without these exhibitors. The exhibit this year will, in every way, be the best that has ever been held by the Association. The Council desires to urge those in attendance to carefully study the exhibits and patronize the exhibitors.

In quite a number of counties the Council has noted with enthusiastic approval the very effective work of the Ladies Auxiliary. They have sponsored public meetings, have

prepared papers on health and medical subjects to be read before women's clubs, church organizations, teachers' institute, have sponsored the baby clinics, have helped in securing patients for the other clinics and attendance at the lectures, and have made themselves generally active in promoting the welfare of the profession to which they are attached. The Council urges that in every county the wives, daughters and mothers of physicians be organized into an active club that will be continually doing these things for the welfare of the State.

We desire to commend to your thoughtful consideration the movement inaugurated by some of great medical and lay leaders as a memorial to the life and achievements of the late General William C. Gorgas, Surgeon General of the Army, who so successfully cleaned up Havana, and who afterward made possible the building of the Panama Canal by practically eradicating yellow fever and malaria from these places which had previously, throughout history, been pest holes. Soon after General Gorgas' death, it was determined to erect a great memorial to him at the Panama Canal, that those who passed it might have constant reminder of his usefulness while he lived. For two years, a splendid committee from the American Medical Association attempted to raise the funds for the erection of this monument, but it was soon found that it was impossible to arouse the people to a cold monument of stone or bronze, to honor a man whose life had been devoted to so much activity in human welfare. Under the leadership of Dr. Franklin Martin, of Chicago, and others of similar standing in the medical world, joined together with a group of distinguished laymen, headed by the President of the United States, it was finally determined that the memorial to General Gorgas should be one such as his own life made worthy of it. It was determined to inaugurate a campaign to educate the people of the Americas, as to the necessity of an annual physical examination by their family physician so that they might learn those tendencies toward disease that could be corrected by slight changes in their habits, so they could live out their normal length of life, and remain healthy and productive during it. This movement will be explained in detail by our Secretary, who has been connected with it from the beginning, and we feel sure that you will be read to commend it to the physicians and people in Kentucky.

It is unnecessary for the members of the House to be reminded that they have absolute

control of all matters of public policy which affect the practice of medicine and public health in Kentucky. The public has clothed us with responsibility in these matters. Sufficient time at this session will be devoted to their consideration to enable us to arrive at the right conclusion regarding the continuation of our program. It is the duty of the House of Delegates to instruct its officers exactly as how they want this done.

Respectfully submitted,
R. C. McCHORD, M. D.
Chairman.

AUDITOR'S REPORT

To the Council of the Kentucky State Medical Association—Gentlemen:

As requested I have this day made a complete audit of the books and accounts of your Secretary, Dr. A. T. McCormack, and your Treasurer, Dr. W. W. McClure, for the period of Sept. 1, 1924, to Sept. 1, 1925.

Every item of receipts and disbursements was followed through the books and found to be charged or credited to the proper account.

All receipts are properly account for and every item of disbursements is represented by a receipted voucher check, authorized by the Council and signed by the proper officers (except checks Nos. 20, 60 and 76, which were not signed by the Treasurer, but were paid by the bank.)

The exhibits herewith submitted set forth the financial transactions from several different angles and show the true condition of your affairs at this date.

Respectfully submitted,

B. P. EUBANK, Auditor.

Reconciliation of the Treasurer's account for period September, 1924, to September, 1925—viz.:

Balance on hand at last report.....\$3,685.43
Less Vouchers then outstanding ---- 2,017.76

Balance agreeing with Secretary's last report...\$ 1,667.67
Amount received from Secretary for period ---- 16,725.22

Total ----- \$18,392.89

DISBURSEMENTS
Vouchers No. 1 to 108 ----- \$13,396.82

Balance September 1, 1925 ----- \$ 4,996.07

Reconciliation:

Balance in Second National Bank, Lexington, Ky., Treasurer Account ----- \$ 5,488.57

Vouchers outstanding, viz:

No. 84, June 6, 1921, A. P. Hunt...\$ 1.00

No. 111, January 3, 1922, Dr. V. A. Stille 6.50

No. 99, July 31, 1925, Dr. L. H. South 100.00

No. 104, July 31, 1925, Clarence Neighbors 50.00

No. 105, July 31, 1925, Electric Blue Print & Supply Co. 10.00

No. 106, August 31, 1925, Dr. A. T. McCormack 150.00

No. 107, August 31, 1925, Dr. L. H. South 100.00

No. 108, August 31, 1925, Elva V. Grant ----- 75.00 \$ 492.50

Balance agreeing with Secretary ----- \$ 4,996.07
Vouchers No. 106, 107, 108 are in the hands of the Secretary to be delivered.

STATEMENT OF ASSETS

Balance in Second National Bank, Lexington, Ky., to the credit of W. B. McClure, Treasurer ----- \$5,488.57
Less Vouchers outstanding ----- 492.50

Net Cash Balance September 1, 1925 ----- \$ 4,996.07

Liberty Bonds in hands of Treasurer, face value 3,000.00

Office Furniture, etc. (see Exhibit "C") ----- 725.84

Total ----- \$ 8,721.91

EXHIBIT "A"

RECEIPTS

Dues from County Societies ----- \$9,120.50
Income of Journal (exclusive of Investments, etc.) ----- 7,477.22 \$16,597.72

Interest on Investments, viz.:

Interest on Liberty Bond No. 1...\$ 85.00

Interest on Liberty Bond No. 2... 42.50 \$ 127.50

Total receipts ----- \$16,725.22

Balance on hand September 1, 1924... 1,667.67

Total ----- \$18,392.89

DISBURSEMENTS

State Medical Association:

Secretary's Salary ----- \$1,800.00

Secretary's Stenographer ----- 845.00

Secretary's Sundries ----- 83.75

Secretary's Stamps and Envelopes ----- 268.04

Treasurer's Office Expense and Bond ----- 12.50

Treasurer's Sundries ----- 36.06

Offices, Councilors and Committee Expenses ----- 126.71

Practice Act, Medical Enforcement... 300.00

Attorneys' Fees, Medico-Legal Committee ----- 1,425.00

Irvine Estate Expense ----- 723.00

Association Sundries ----- 167.76

Expense, Louisville Meeting ----- 804.53

Expense, Owensboro Meeting ----- 10.00

Total State Medical Association... \$ 6,736.75

Kentucky Medical Journal:

Business Manager's Salary \$1,200.00

Business Manager's Sundries ----- 26.00

Printing Journal ----- 5,000.22

Journal Postage ----- 175.00

Journal Sundries ----- 258.85

Total Journal ----- \$ 6,660.07

Grand Total ----- \$13,396.82

Balance on hand this date ----- 4,996

Total ----- \$18,392.89

EXHIBIT "B"

Detailed list of receipts from County Societies from September, 1924, to September 1, 1925, compared with incomes of same period last year.

	1924	1925
Adair	\$ 35.00	\$ 30.00
Allen	55.00	55.00
Anderson	50.00	45.00
Ballard	70.00	60.00
Barren	90.00	70.00
Bath	35.00	45.00
Bell	175.00	150.00
Boone	15.00	10.00
Bourbon	90.00	80.00
Boyd	220.00	230.00
Boyle	60.00	70.00
Bracken	40.00	40.00
Breathitt	55.00	45.00
Breckinridge	70.00	70.00
Bullitt	20.00	40.00
Butler	20.00	30.00
Caldwell	45.00	40.00
Calloway	75.00	75.00
Campbell-Kenton	505.00	400.00
Carlisle	50.00	50.00
Carroll	40.00	40.00
Carter	65.00	70.00
Casey	40.00	35.00
Christian	160.00	130.00

Clark	105.00	70.00
Clay	40.00	50.00
Clinton	10.00	10.00
Crittenden	35.00	35.00
Cumberland	30.00	45.00
Daviess	215.00	215.00
Elliott		
Estill	15.00	20.00
Fayette	430.00	370.00
Fleming	70.00	70.00
Floyd	25.00	30.00
Floyd	25.00	30.00
Franklin	105.00	105.00
Fulton	35.00	40.00
Gallatin	20.00	20.00
Grant	55.00	50.00
Garrard	35.00	35.00
Graves	130.00	150.00
Grayson	65.00	60.00
Green	30.00	45.00
Greenup	20.00	50.00
Hancock	5.00	5.00
Hardin	110.00	100.00
Harlan	215.00	210.00
Harrison	90.00	85.00
Hart	35.00	40.00
Henderson	95.00	100.00
Henry	50.00	30.00
Hickman	55.00	45.00
Hopkins	115.00	125.00
Jackson	12.00	20.00
Jefferson	1,810.00	1,812.50
Jessamine	50.00	55.00
Johnson	70.00	50.00
Knott	5.00	
Knox	55.00	55.00
Larue	35.00	45.00
Laurel	40.00	30.00
Lawrence	30.00	35.00
Lee		4.00
Leslie	5.00	5.00
Letcher	40.00	45.00
Lewis	30.00	30.00
Lincoln	95.00	75.00
Livingston	30.00	40.00
Logan	95.00	95.00
Lyon	25.00	25.00
McCracken	205.00	240.00
McCreary	30.00	25.00
McLean	20.00	30.00
Madison	115.00	125.00
Magoffin		
Marion	65.00	60.00
Marshall	95.00	90.00
Martin		
Mason	75.00	100.00
Meade	5.00	
Menifee		
Mercer	85.00	90.00
Monroe	20.00	20.00
Metcalfe	40.00	40.00
Montgomery	75.00	75.00
Morgan		10.00
Muhlenberg	60.00	90.00
Nelson	60.00	75.00
Nicholas	50.00	50.00
Ohio	30.00	45.00
Oldham	45.00	40.00
Owen	35.00	15.00
Owsley	15.00	15.00
Pendleton	45.00	40.00
Perry	190.00	165.00
Pike	25.00	150.00
Powell	20.00	20.40
Pulaski	75.00	70.00
Robertson	10.00	10.00
Rockcastle	30.00	20.00
Rowan	1.00	25.90
Russell	35.00	30.00
Scott	90.00	65.00
Shelby	40.00	114.00
Simpson	65.00	55.00
Spencer	5.00	5.00
Taylor	40.00	45.00
Todd	55.00	50.00
Trigg	15.00	15.00
Trimble		
Union	50.00	65.00
Warren	120.00	145.00
Washington	50.00	50.00
Wayne	34.00	20.00
Webster	15.00	30.00
Whitley	133.00	140.00
Wolfe		
Woodford	15.00	15.00
	\$9,039.00	\$9,120.50

EXHIBIT "C"

Invoice of the property of the Association, September 1, 1925.

Addressograph with 5,000 complete addressed plates with list device, etc	\$ 600.00
1 Remington Typewriter	25.00
1 Desk	50.00
Filing Cabinet	64.75
Rubber Stamps	9.00
Guide Cards	5.00
1-3 Adding Machine	75.00
Typewriter Chair	9.00
1 Electric Fan	18.00
1 Globe Safe with Fixtures	130.00
2,000 No. 5 2-cent Stamped Envelopes, \$21.92 per hundred	43.84
2,000 No. 8 2-cent Stamped Envelopes, \$22.88 per hundred	45.76
500 No. 9 2-cent Stamped Envelopes	13.41
Total	\$1,088.76
Reduction for depreciation in machinery	362.92
	\$ 725.84

EXHIBIT "D"

Secretary's monthly sheet, agreeing with books.

September 1. Balance on hand, Sept. 1, 1924	\$1,667.67
1924-1925 Expenses	
October 1	\$ 1,144.04
November 1	2,812.52
December 1	760.64
January 1	345.65
February 1	2,015.54
March 1	1,170.15
April 1	202.40
May 1	392.78
June 1	807.90
July 1	1,105.45
August 1	1,314.75
September 1	325.00
	\$13,396.82
Balance on hand Sept. 1, 1924	\$ 1,667.67
	\$18,392.89
Balance on hand Sept. 1, 1925	\$ 4,996.07
Total expenses	13,396.82
	\$18,393.89

EXHIBIT "E"

Collections by Secretary on account of Kentucky State Medical Association, corresponding with checks, deposit slips, and receipts, filed herewith:

1924-25	
October 1—To Collections to Date	\$ 324.00
November 1—To Collections to Date	154.00
December 1—To Collections to Date	20.00
February 1—To Collections to Date	1,320.00
March 1—To Collections to Date	1,722.50
April 1—To Collections to Date	1,230.00
May 1—To Collections to Date	2,857.50
June 1—To Collections to Date	1,220.00
July 1—To Collections to Date	210.00
August 1—To Collections to Date	52.50
Total for Year	\$9,120.50

EXHIBIT "F"

Collections by editor on account of the JOURNAL, corresponding with checks, deposit slips, and receipts filed herewith:

1924-25	
October 1—To Collections to Date	\$1,244.96
November 1—To Collections to Date	1,504.76
December 1—To Collections to Date	494.51
February 1—To Collections to Date	466.72
March 1—To Collections to Date	1,192.65
April 1—To Collections to Date	770.05
May 1—To Collections to Date	174.75
June 1—To Collections to Date	558.53
July 1—To Collections to Date	556.93
August 1—To Collections to Date	513.86
Total for Year	\$7,477.22
Interest on Liberty Bonds	127.50
Grand Total	\$7,604.72

EXHIBIT "G"

Total membership by Councilor Districts and by counties for 1924 as compared to that of 1925.

* First District—V. A. Stilley, Benton, Councilor.

	1924	1925
Ballard	14	12
Caldwell	9	8
Calloway	14	15
Carlisle	10	10
Fulton	8	7
Graves	26	29
Hickman	11	9
Livingston	7	7
Lyon	5	5
Marshall	19	18
McCracken	43	36
Trigg	4	2
	170	168

Second District—D. M. Criffith, Owensboro, Councilor.

	1924	1925
Breckinridge	14	14
Crittenden	7	7
Daviess	45	41
Hancock	1	1
Henderson	16	17
Hopkins	27	21
McLean	4	6
Muhlenberg	16	15
Ohio	6	9
Union	11	12
Webster	5	4
	152	147

Third District—J. H. Blackburn, Bowling Green, Councilor.

	1924	1925
Allen	11	11
Barren	18	14
Butler	5	5
Christian	32	26
Cumberland	6	9
Hart	7	8
Logan	19	19
Metcalfe	8	8
Monroe	4	4
Simpson	13	11
Todd	11	9
Warren-Edmondson	24	26
	158	150

Fourth District—E. S. Smith, Hodgenville, Councilor.

	1924	1925
Bullitt	6	6
Grayson	14	11
Hardin	21	20
Henry	9	6
Larue	7	9
Meade	1	
Nelson	13	14
Oldham	9	8
Shelby	13	18
	93	92

Fifth District—W. E. Gardner, Louisville, Councilor.

	1924	1925
Anderson	10	9
Boone	1	2
Carroll	8	8
Franklin	21	21
Gallatin	4	4
Jefferson	351	355
Owen	7	3
Spencer	1	1
Trimble		
	403	403

Sixth District—R. C. McChord, Lebanon, Councilor.

	1924	1925
Adair	7	6
Boyle	12	11
Green	6	9
Marion	14	11
Mercer	17	17
Taylor	8	9
Washington	10	10
	74	73

Seventh District—V. G. Kinnaird, Lancaster, Councilor.

	1924	1925
Casey	6	5
Clinton	2	2
Garrard	7	7
Lincoln	17	15
McCreary	6	5
Pulaski	17	12
Rockcastle	6	74
Russell	7	6
Wayne	6	4
	74	60

Eighth District—F. A. Stine, Newport, Councilor.

	1924	1925
Bourbon	17	16
Bracken	8	9
Campbell	103	77
Fleming	14	14
Grant	11	10
Harrison	18	17
Jessamine	10	11
Mason	14	20
Nicholas	10	10
Pendleton	9	8
Robertson	2	2
Scott	16	13
Woodford	3	2
	235	208

Ninth District—A. J. Bryson, Ashland, Councilor

	1924	1925
Boyd	44	44
Carter	15	12
Elliott		
Floyd	7	4
Greenup	7	7
Johnson	13	9
Lawrence	6	7
Lewis	6	6
Magoffin		
Pike	16	18
	114	107

Tenth District—R. J. Estill, Lexington, Councilor.

	1924	1925
Bath	8	8
Breathitt	10	9
Clark	21	14
Estill	3	4
Fayette	86	74
Knott	1	
Lee	1	
Letcher	8	7
Madison	24	24
Menifee		
Montgomery	15	15
Morgan	1	1
Owsley	3	3
Perry	37	31
Powell	4	4
Rowan	3	4
Wolfe		
	225	198

Eleventh District—W. M. Martin, Harlan, Councilor

	1924	1925
Bell	34	29
Clay	9	9
Harlan	39	39
Jackson	3	3
Knox	11	11
Laurel	2	6
Leslie	1	1
Whitley	23	28
	128	126

EXHIBIT "H"

Detailed statement of disbursements of W. B. McClure, Treasurer, Kentucky State Medical Association, each made on a voucher check signed by Dr. J. R. Cowan, President, Dr. A. T. McCormack, Secretary, and himself, from September 1, 1924, to September 1, 1925.

1924				
September 30	—Voucher Check No. 1		\$ 151.55	
	DR. A. T. McCORMACK, Secretary, Louisville.			
	To September salary	\$150.00		
	To expense, telephone call to Bowling Green	1.55		
September 30	—Voucher Check No. 2		\$ 100.00	
	DR. L. H. SOUTH, Business Manager, Louisville.			
	To September salary.			
September 30	—Voucher Check No. 3		\$ 20.00	
	ELVA GRANT, Bookkeeper, Louisville.			
	To salary, eight days during September.			
September 30	—Voucher Check No. 4		\$ 12.50	
	HAUPT, Florist, Louisville.			
	To 1 design for Dr. C. Z. Aud.			
September 30	—Voucher Check No. 5		\$ 2.48	
	MEFFERT EQUIPMENT CO., Louisville.			
	To 1 ledger.			
September 30	—Voucher Check No. 6		\$ 11.50	
	MRS. J. C. TAULBEE, Lexington.			
	To reimbursement of expense in case of Rowlett vs. Taulbee. Cost of taking depositions in case.			
September 30	—Voucher Check No. 7		\$ 10.74	
	THE TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
	To mailing July Journals	\$.74		
	To 200 applications for space	5.00		
	To 200 commercial exhibits	5.00		
September 30	—Voucher Check No. 8		\$ 317.92	
	THE TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
	To August issue, 2150-64 P	\$ 303.62		
	To 25 changes	5.00		
	To envelopes	15.00		
	To printing envelopes	2.30		
	Less 32 errors @ 25c each	8.00		
September 30	—Voucher Check No. 9		\$ 481.35	
	THE TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
	To September issue, 2300-88 P	\$ 477.50		
	To 28 changes	5.60		
		\$ 483.10		
	Less 7 errors @ 25c each	1.75		
September 30	—Voucher Check No. 10		\$ 18.00	VOID
	M. J. LEAMY.			
	To 3 nights as watchman @ \$6.00 per night.			
September 30	—Voucher Check No. 11		\$ 18.00	VOID
	J. A. MORAN.			
	To 3 nights as watchman @ \$6.00 per night.			
September 30	—Voucher Check No. 12		\$ 36.00	
	AMERICAN DETECTIVE AGENCY.			
	To service of 2 men, 3 nights as watchmen @ \$12.00 per night.			
1924				
October 31	—Voucher Check No. 13		\$ 217.30	
	DR. A. T. McCORMACK, Secretary, Louisville.			
	To October salary	\$ 150.00		
	To sundry cash expense at State Medical meeting, Sept. 22-25, inc.	67.30		
	Approved by Council and ordered paid by House of Delegates.			
October 31	—Voucher Check No. 14		\$ 112.60	
	DR. L. H. SOUTH, Business Manager, Louisville.			
	To October salary	\$ 100.00		
	To expense at State Medical meeting, Brown Hotel	12.00		
	Approved by Council and ordered paid by House of Delegates.			
October 31	—Voucher Check No. 15		\$ 75.00	
	ELVA GRANT, Bookkeeper, Louisville.			
	To October salary.			
	Approved by Council and ordered paid by House of Delegates.			
October 31	—Voucher Check No. 16		\$ 30.00	
	MAYME SULLIVAN, Louisville.			
	To Honorarium	\$ 25.00		
	To expense at State Meeting	5.00		
	Approved by Council and ordered paid by House of Delegates.			
October 31	—Voucher Check No. 17		\$ 28.30	
	MARY ATKINS, Louisville.			
	To Honorarium	\$ 25.00		
	To expense at State Meeting	3.30		
	Approved by Council and ordered paid by House of Delegates.			
October 31	—Voucher Check No. 18		\$ 20.46	
	DR. D. M. GRIFFITH, Owensboro.			
	To expenses as Councillor.			
	Approved by Council and ordered paid by House of Delegates.			

October 31—	Voucher Check No. 19	-----	\$	19.00
	DR. V. G. KINNIARD, Lancaster.			
	To expenses as Councilor.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 20	-----	\$	29.56
	DR. W. B. McCLORE, Lexington.			
	To expenses as Treasurer.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 21	-----	\$	47.75
	DR. J. H. BLACKBURN, Bowling Green.			
	To expenses as Councilor.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher No. 22	-----	\$	57.54
	THE BROWN HOTEL, Louisville.			
	To expenses of J. G. Denhardt	-----	\$	30.55
	To expenses of Miss Chilles	-----		21.99
	To expenses of A. Stengel	-----		5.00
	Approved by Council and ordered paid by House of Delegates.			
1924				
October 31—	Voucher Check No. 23	-----	\$	15.00
	DR. A. J. BRYSON, Ashland.			
	To expenses as Councilor.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 24	-----	\$	179.77
	MASTER REPORTING CO., Chicago, Ill.			
	To reporting minutes of House of Delegates, State Medical Meeting.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 25	-----	\$	20.00
	To 1 chartered coach, Brown Hotel to Lakeland. (State Medical Meeting.)			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 26	-----	\$	3.25
	To 1 signature stamp and cut.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 27	-----	\$	4.00
	LOUISVILLE TAXICAB & TRANSFER CO., Louisville.			
	To hauling 7 bags from 6th and Main to Brown Hotel	-----	\$	2.00
	To hauling one-half loan from Brown Hotel to 6th and Main	-----		2.00
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 28	-----	\$	150.00
	ALLEN, BOTTS & DUNCAN.			
	To attorney fee in case—Mrs. Foster Ellis vs. Dr. W. O. Bullock.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 29	-----	\$	462.36
	TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
	To 2200-88 P., October Issue	-----	\$	383.30
	To 22 changes	-----		4.40
	To 2,500 envelopes	-----		15.00
	To printing envelopes	-----		2.30
	To mailing Journals	-----		1.36
	To 500 programs, 16 P.	-----		56.00
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 30	-----	\$	500.00
	CURLEE & HAY, Attorneys, St. Louis, Mo.			
	To retainer's fee in case—Irvine Estate.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 31	-----	\$	127.00
	J. J. GREENLEAF, Attorney, Richmond.			
	To expense to Louisville	-----	\$	15.00
	To expense to Kansas City	-----		112.00
	Approved by Council and ordered paid by House of Delegates.			
1924				
October 31—	Voucher Check No. 32	-----	\$	11.00
	LOTTIE HUNDESMAN, Paducah.			
	To deposition of Mrs. Delie Hall in case—Mrs. Nell Tyree vs. Dr. E. R. Goodloe.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 33	-----	\$	12.50
	AMERICAN SURETY CO. of N. Y.			
	To Treasurer, Ky. State Medical Association, Bond No. 0455905.			
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 34	-----	\$	73.58
	COURIER-JOURNAL JOB PRINTING CO., Louisville.			
	To 2½ M 1925 membership cards	-----	\$	36.79
	To 2½ M 1926 membership cards	-----		36.79
	Approved by Council and ordered paid by House of Delegates.			
October 31—	Voucher Check No. 35	-----	\$	617.15
	TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
	To Nov. Issue, 2250-128 P.	-----	\$	564.24
	To 2,500 envelopes	-----		15.00
	To printing envelopes	-----		2.30
	To 30 changes	-----		6.00
	To mailing Journals	-----		.61
	To 5,000 letterheads, Secretary	-----		20.00
	To 500 letterheads and 500 envelopes, Treasurer	-----		6.50
	To 500 envelopes, Third District	-----		2.50
	Approved by Council and ordered paid by House of Delegates.			
November 29—	Voucher Check No. 36	-----	\$	150.00
	DR. A. T. McCORMACK, Secretary, Louisville.			
	To November salary.			

November 29—Voucher Check No. 37 -----	\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville. To November salary.	
November 29—Voucher Check No. 38 -----	\$ 75.00
ELVA GRANT, Bookkeeper, Louisville. To November salary.	
November 29—Voucher Check No. 39 -----	\$ 61.45
B. P. EUBANKS, Bowling Green. To auditing books and accounts of Secretary, Dr. A. T. McCormack, and Treasurer, W. B. McClure, for period, Sept., 1923-Sept., 1924 -----	\$ 50.00
For R. R. fare and meals -----	11.45
November 29—Voucher Check No. 40 -----	\$ 130.45
S. W. BASSETT CO., Providence, R. I. To 500 bangles, Louisville, 1924.	
November 29—Voucher Check No. 41 -----	\$ 208.24
THE MASTER REPORTING CO. To reporting meeting of Kentucky Medical Association at Louisville. Eye, Ear, Nose and Throat Section) General Sessions) -----	\$ 208.24
1924	
November 29—Voucher Check No. 42 -----	\$ 1.50
REIMER'S, Louisville. To rental of fern for State Meeting.	
November 29—Voucher Check No. 43 -----	\$ 25.00
CLARENCE NEIGHBORS, P.M., Bowling Green. To postage on Journals.	
November 29—Voucher Check No. 44 -----	\$ 9.00
DR. GAYLORD C. HALL, Louisville. To expenses as President of Eye, Ear, Nose and Throat Section.	
December 22—Voucher Check No. 45 -----	\$ 164.90
DR. A. T. McCORMACK, Secretary, Louisville. To December salary -----	\$ 150.00
To expense to Chicago -----	14.90
December 22—Voucher Check No. 46 -----	\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville. To December salary.	
December 22—Voucher Check No. 47 -----	\$ 75.00
ELVA GRANT, Bookkeeper, Louisville. To December salary.	
December 22—Voucher Check No. 48 -----	\$ 5.75
HAUPT, Florist, Louisville. To 1 design and express on same to Owensboro.	
December 24—Voucher Check No. 49 -----	\$ 550.38
TIMES-JOURNAL PUBLISHING CO., Bowling Green. To 2200-128 P. December issue -----	\$ 563.83
To 2,500 envelopes -----	15.00
To printing envelopes -----	2.30
To 35 changes -----	7.00
	\$ 588.13
Less 3 days at \$10.00 -----	\$ 30.00
Less 31 errors @ 25c -----	7.75
	\$ 550.38
January 30—Voucher Check No. 50 -----	\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville. To January salary.	
January 30—Voucher Check No. 51 -----	\$ 102.00
DR. L. H. SOUTH, Business Manager, Louisville. To January salary -----	\$ 100.00
To expense to New Castle -----	2.00
January 30—Voucher Check No. 52 -----	\$ 75.00
ELVA GRANT, Bookkeeper, Louisville. To January salary.	
January 30—Voucher Check No. 53 -----	\$ 225.00
FRED FORCHT, Attorney, Louisville. To retainers fees July 1, 1924—January 1, 1925 -----	\$ 150.00
To attorney fee in case America M. Silver vs. Dr. B. F. Zimmerman -----	75.00
January 30—Voucher Check No. 54 -----	\$ 4.19
BUSH KREBS CO., Louisville. To 1 square H. T. cut.	
1925	
January 30—Voucher Check No. 55 -----	\$ 42.75
DR. ALFRED STENGEL, Philadelphia, Pa. To expense to State Meeting.	
January 30—Voucher Check No. 56 -----	2.00
MEFFERT EQUIPMENT CO., Louisville. To 500 4x6 plain cards for file.	
January 30—Voucher Check No. 57 -----	\$ 50.00
CLARENCE NEIGHBORS, P.M., Bowling Green. To postage for Journals.	
January 30—Voucher Check No. 58 -----	\$ 391.20
TIMES-JOURNAL PUBLISHING CO., Bowling Green. To January issue, 2200-88 P -----	\$ 383.30
To 28 changes -----	5.60
To printing envelopes -----	2.30
	\$ 391.20

January 30—Voucher Check No. 59		\$ 223.04
LUDLOW PETTY, P. M.		
To 6 M No. 5 2c envelopes @ \$21.92 per M	\$ 131.52	
To 4 M No. 8 2c envelopes @ \$22.88 per M	91.52	
	\$ 223.04	
January 30—Voucher Check No. 60		\$ 200.00
DR. GEORGE P. SPRAGUE, Lexington.		
To reimbursement for attorney fees in case of Ray Evans vs. Dr. George P. Sprague.		
February 28—Voucher Check No. 61		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To February salary.		
February 28—Voucher Check No. 62		\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To February salary.		
February 28—Voucher Check No. 63		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To February salary.		
February 28—Voucher Check No. 64		\$ 96.00
J. J. GREENLEAF, Attorney, Richmond.		
To expense to Kansas City, January 15-19.		
February 28—Voucher Check No. 65		\$ 150.00
JAMES G. DENNEY, Attorney, Lexington.		
To attorney fee in case of L. S. B. Rowlett vs. Dr. J. H. Taulbee.		
February 28—Voucher Check No. 66		\$ 26.70
J. H. CARTER, C. F. C. C., Lexington.		
To court costs in case of L. S. B. Rowlett vs. Dr. J. H. Taulbee.		
February 28—Voucher Check No. 67		\$ 25.00
LUDLOW PETTY, P.M., Louisville.		
To stamps.		
1925.		
February 28—Voucher Check No. 68		\$ 547.45
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 2,200 February issue, 120 pages	\$ 532.15	
To 30 changes	6.00	
To 2,500 envelopes	15.00	
To printing envelopes	2.30	
TOTAL	\$ 555.45	
Less 32 errors @ 25¢ each	8.00	
March 1—Voucher Check No. 69		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To March salary.		
March 31—Voucher Check No. 70		\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To March salary.		
March 31—Voucher Check No. 71		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To March salary.		
March 31—Voucher Check No. 72		\$ 75.00
FRED FORCHT, Attorney, Louisville.		
To attorney fees in case Robert Tatum vs. Dr. J. B. Stroud.		
March 31—Voucher Check No. 73		\$ 3.50
KOEHLER STAMP & STENCIL CO., Louisville.		
To 1 signature stamp.		
March 31—Voucher Check No. 74		\$ 375.00
L. B. ALEXANDER and C. C. GRASSHAM, Attorneys, Paducah.		
To attorney fees in case Nell Tyree vs. E. R. Goodloe.		
March 31—Voucher Check No. 75		\$ 10.20
MAHALA K. McCARTY, Paducah.		
To taking depositions in case Nell Tyree v. E. R. Goodloe.		
March 31—Voucher No. 76		\$ 406.60
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 2,200 88-P. March Journal	\$ 383.30	
To 30 changes	6.00	
To 2,500 envelopes	15.00	
To printing envelopes	2.30	
	\$ 406.60	
March 31—Voucher Check No. 77		\$ 3.50
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 1,000 statements.		
March 31—Voucher Check No. 78		\$ 3.00
BUSH-KREBS CO., Louisville.		
To 1 cut.		
April 30—Voucher Check No. 79		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To April salary.		
April 30—Voucher Check No. 80		\$ 112.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To April salary	\$ 100.00	
To expense to and from Bowling Green, April 13 and 14	12.00	
April 30—Voucher Check No. 81		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To April salary.		
April 30—Voucher Check No. 82		\$ 2.25
KENTUCKY BOOK MFG. CO.		
To Kentucky Medical Journals bound full black buckram.		
April 30—Voucher Check No. 83		\$ 3.53
BUSH-KREBS CO.		
To 1 square cut.		

April 30—Voucher Check No. 84		\$ 50.00
CLARENCE NEIGHBORS, P. M.		
To postage on Journals.		
May 12—Voucher Check No. 85		\$ 407.90
TIMES JOURNAL PUBLISHING CO.		
To 2,300 92-page April issue	\$ 410.00	
To 28 changes	5.60	
To 2,500 envelopes	15.00	
To printing envelopes	2.30	
	\$ 432.90	
Less amount for incorrect arrangement of Journal	25.00	
	\$ 407.90	
May 29—Voucher Check No. 86		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To May salary.		
May 29—Voucher Check No. 87		\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To May salary.		
May 29—Voucher Check No. 88		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To May salary.		
May 29—Voucher Check No. 89		\$ 75.00
HADEN OWENS, Wickliffe.		
To reporting and making transcript in case Dr. Bob Overby vs. Myrtle Hicks.		
June 30—Voucher Check No. 90		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To June salary.		
June 30—Voucher Check No. 91		\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To June salary.		
June 30—Voucher Check No. 92		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To June salary.		
June 30—Voucher Check No. 93		\$ 33.00
COURIER-JOURNAL JOB PRINTING CO., Louisville.		
To 2,500 halftone and sheets, printed 7½x10½.		
June 30—Voucher Check No. 94		\$ 1.00
THE ART SHOP, Louisville.		
To 1 frame.		
June 30—Voucher Check No. 95		\$ 435.19
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 2,250 May issue, 92 pages	\$ 414.77	
To 30 changes	6.00	
To 2,000 envelopes	12.00	
To printing 2,000 envelopes	2.30	
To postage due	.12	
Total	\$ 435.19	
June 30—Voucher Check No. 96		\$ 13.00
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 500 letter heads and 500 envelopes, Councilors	\$ 6.50	
To 500 letter heads, and 500 envelopes, Secretary Eye, Ear, Nose and Throat	6.50	
June 30—Voucher Check No. 97		\$ 298.26
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 2,300 June issues, 64 pages	\$ 293.26	
To 25 changes	5.00	
July 31—Voucher Check No. 98		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To July salary.		
July 31—Voucher Check No. 99		\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To July salary.		
July 31—Voucher Check No. 100		\$ 75.00
ELVA GRANT, Bookkeeper, Louisville.		
To July salary.		
July 31—Voucher Check No. 101		\$ 400.00
ROBBINS & ROBBINS AND JOHN M. MOORE, La Center.		
To attorney fees in case Ella Wilson vs. Dr. J. H. Hahs	\$ 100.00	
To attorney fees in case Myrtle Hicks vs. Dr. Bob C. Overby	300.00	
July 31—Voucher Check No. 102		\$ 150.00
FRED FORCHT, Attorney, Louisville.		
To services for period Jan. 1, 1925-July 1, 1925.		
July 31—Voucher Check No. 103		\$ 379.75
TIMES JOURNAL PUBLISHING CO., Bowling Green.		
To 2,250 July issue, 84 pages	\$ 371.45	
To printing envelopes	2.30	
To 30 changes	6.00	
Total	\$ 379.75	
July 31—Voucher Check No. 104		\$ 50.00
CLARENCE NEIGHBORS, P. M., Bowling Green.		
To postage on Journals.		
July 31—Voucher Check No. 105		\$ 10.00
ELECTRIC BLUE PRINT & SUPPLY CO.		
To floor space plan for exhibit 200 @ 5c.		
August 31—Voucher Check No. 106		\$ 150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To August salary.		

August 31—Voucher Check No. 107 -----	\$ 100.00
DR. L. H. SOUTH, Business Manager, Louisville. To August salary.	
August 31—Voucher Check No. 108 -----	\$ 75.00
ELVA GRANT, Bookkeeper, Louisville. To August salary.	
TOTAL -----	\$13,396

REPORT OF THE BUSINESS MANAGER

During the last twelve months the following table shows the various activities of the Journal:

Editorials	56
Official announcements	14
Original articles	209
County Society Reports	47
Book Reviews	24

Too few societies have been sending in their proceedings, although we know there are many of them holding their meetings. Society reports are given preference in the Journal so that secretaries can use same as files for their official records.

INDEX

Each year the Journal publishes a complete index of every special article or item, official announcement, authors and discussors of articles and county society reports, also a cross index of the names of every physician who takes part in the authorship or proceedings. Cross indices are added to make easy reference to any subject of the article.

COMMERCIAL EXHIBIT

The 1924 meeting had the largest number of commercial exhibitors and we are pleased to note that they were liberally patronized by the members. As most of the expense of our annual meeting is borne by the exhibitors, it is suggested that those in attendance give them as liberal a patronage as their exhibits warrant.

COUNTY SOCIETIES

It has been my pleasure to assist several of the councilors in arranging county society programs, and I desire to thank their respective secretaries for their energetic work in securing good attendance. Our office equipment is available to any secretary or councilor in arranging for meetings, and we will be glad to furnish speakers on any particular subjects of which the county societies desire to conduct their program.

THE JOURNAL

The expense of publishing the Journal can be studied as shown in exhibit A in the secretary's report. We have had the largest number of advertisers of any year of the Journal.

PAST PRESIDENTS AND SECRETARIES

I have succeeded in securing the photographs of all our past presidents and secretaries since the association was established in 1851 with the exception of Dr. Joshua B. Flint of Louisville, who was president in 1859. If anyone knows any of the members or relatives of the Flints, I will appreciate being notified. As soon as the financial condition of the association will permit the expenditure of a sufficient amount, we will have a standard copy made and placed in the office of the association and give a duplicate to the State Historical Society. I desire to express my appreciation to the members and officers of the various county secretaries and to our advertisers, all of whom have helped to make my work easier and more profitable in the year.

Respectfully submitted,
L. H. SOUTH

NEWS ITEMS

The American Electrotherapeutic Association will hold its 35th Annual Session September 15 to 18, at the Hotel Drake, Chicago, Ill. Papers will be read by the leading men in the field of physical therapeutics and by invited guests of national reputation. A demonstration of actual technic of application of the various physical modalities will be given. There will be a complete exhibit of the latest electrotherapeutic apparatus and accessories. All legally licensed physicians are welcome and detailed program can be obtained by addressing Dr. Richard Kovaes, Secretary, 223 East 68th Street, New York City.

The average length of human life in the United States is about 56 years. The average span of life in this country has been lengthened approximately fifteen years since 1870.

The Central Medical Association met in Harrodsburg June 16. There was a splendid program and a good attendance.

PRESIDENT'S ADDRESS**PERIODICAL EXAMINATION OF
THE APPARENTLY WELL***

BY R. L. WOODARD, HOPKINSVILLE

The subject to which I call your attention today is by no means a new one. In fact it is more than a half century old. It is the periodical examination of apparently well people.

A health examination is a thorough physical examination of one who presents no objective or subjective signs of disease; a complete inventory of our health assets and disease liabilities. The fact that your family physician has known you for a long time will not enable him to give you the advice you may need without a complete and thorough examination. When you visit your dentist or oculist he makes an examination before he tells you what to do or what not to do, and the same should apply to your health examination. The mental relief of one who has had a thorough examination and found to be normal is certainly worth the time and trouble taken to ascertain this fact. If on the other hand some abnormal condition is discovered in its incipency and proper measures taken to overcome it, which in most instances can be done, it will add years to your life and prevent much physical suffering and mental anguish.

It is only within the last ten years that this has been done to any extent in an organized manner in our country, and even now a great many of the examinations of the apparently well are made in connection with other health measures by large employers of labor. This is done for economic rather than philanthropic reasons. These companies originally employed a doctor to look after their sick and injured. They have found by putting into practice the well known principles of preventive medicine that the incident of sickness and consequent loss of time have been very materially reduced, and they have been able to make their health department a paying investment.

A large number of insurance companies have advocated regular examinations of their policyholders, and are giving such examinations without cost. A careful record kept of those who avail themselves of this free examination compared with a like number of policyholders who were not examined shows a saving of twenty-

eight per cent in mortality. This shows that the regular examination of well persons, coupled with the advice given at this time in regard to other preventive measures, has a decided economic value.

If we would produce a healthy child we must begin about three generations before the birth of the child, and, as our forefathers neglected to do this, we find that in the present generation about sixty-five per cent have one or more defects, practically all of which either have been prevented or can be remedied.

At present it is a sad commentary on our boasted high state of civilization when we find that at any given time there are 3,000,000 people who are sick enough to be under the care of a doctor, and at the same time there are 40,000,000 who are physically below par. This state of national sickness should not obtain. Sixty per cent of the acute illnesses are absolutely preventable and seventy-five per cent of those physically below normal could be brought to normal. The most striking example of our physical shortcomings are the facts disclosed by examination of men for the World War. This examination showed that one-third of all men examined for service were entirely unfit for military duty, and one-third fit only for less strenuous work than active service; and remember that this high percentage of defects was found among men, at the age when they were supposed to be at their best. This high percentage is increased when we come to men and women applying for employment in the large industries of the world, and is the cause of greater monetary loss to the employer, because the physically unfit are incapable of one hundred per cent efficiency. By far the greater loss, however, is to the man himself, and to his family on account of sickness and consequent loss of time caused by a physical handicap.

There are at present a number of organizations who are sponsoring health examinations of the apparently well. The American Medical Association at its meeting three years ago incorporated this movement in its activities, and has prepared a blank for this work. The National Health Council and various other agencies of like nature are interested in this movement, and have adopted, as a slogan, "Have a health examination on your birthday," which, of course, means an annual examination. This examination should be a thorough one and done

*To be delivered before the meeting of the Kentucky State Medical Association October 5 to 8, 1925.

by a competent examiner, and in most cases that examiner will be your family doctor.

Preventive medicine has protected us against most of the acute diseases; but cancer, kidney disease, heart trouble, diabetes, apoplexy and other organic affections are frequently insidious in their onset and do an irreparable damage before they cause pain or other symptoms that call attention to them. The discovery of these maladies early means that they may frequently be cured, and in practically all cases checked in their progress.

Most of you go to your dentist at least once a year, or oftener, because you know the benefits to be derived from preserving your teeth; there are much greater benefits to be derived from an annual or semi-annual visit to your doctor, who should be your health adviser instead of your family doctor.

If we would be benefactors to the people who are to follow us, we must begin to put into practice those things which we know from actual experience are for the betterment of the human race; and if some of us will not do it from other than a monetary motive we may show them that, aside from the good to the human family, it has a dollar-and-cents value. If it pays large corporations to look after the health of their employes, and if the insurance companies, by offering their policyholders free examinations and instructions in sanitation and personal hygiene, can, as one company did last year, effect a saving of two million dollars over the cost of this service, it certainly would apply to the individual and any given community.

It is a well established fact that personal and public health is a purchasable commodity, and the incident of sickness and death in any community is in direct proportion to the amount of money invested. Any given community can foretell its sickness and death rate within certain limits by the amount of money invested in public health work, and by the co-operation of its citizens with its health authorities.

The periodic examination of the apparently well is just one item which goes to make up the public health program. The average duration of life has been increased eighteen years within the very short period of two generations. This has been brought about by the scientific application of well known principles of preventive medicine and has been done

by overcoming prejudices and by education of the ignorant. The next generation will see much greater advances in the application of health principles and consequent lengthening of the present life expectancy. If we would instill into our people the importance of and the benefit to be derived from public health work, we must, of necessity, begin in the school. The medical examination of school children will discover many remedial defects which, if left alone, will seriously handicap the child through life; the instruction in personal hygiene and the teaching of the principle of sanitation will become so much a part of his education that he will be able to avoid much sickness. And last, but not least, these children are the men and women of tomorrow. When they take their places in our administrative bodies, we will be enabled to secure money to carry on this health work which is so seriously handicapped today by legislators who do not see the importance of and will not be taught the necessity of this work.

The American people usually get what they want, and if we would have public health work properly financed and conducted by capable men, you as a citizen of this great American nation must do your part. Your individual health is a personal matter, and the health of the community is in direct proportion to your individual interest plus your co-operation with the authority intrusted to carry out these measures; the results obtained depend not alone on your individual support, but on the team work of the whole community.

Contraction of the Uterus.—In protraction deliveries, Forget-Urien warns that it is important to think of hypertonia. The patient is restless and complains of pains in the loins; palpation is difficult on account of the tension and sensitiveness of the uterus. A contraction ring may exceptionally be felt; the cervix is thick, taut between contractions, and tender. Hot injections, emptying the bladder and rectum, administration of sugar and quinin will help to determine the tonicity of the uterus. In hypertonia, morphine is indicated. If pains are severe and dilatation insufficient to hasten the expulsion, we should have recourse to analgesics. When dilatation is almost complete injections of pituitary extracts or the forceps can be used. She expresses a preference for forceps, saying that it is difficult to control the effects of pituitary injections.

ORIGINAL ARTICLES

CONGENITAL CLEFT OF LIP AND PALATE*

LEE KAHN, LOUISVILLE, KY.

A proper understanding of congenital clefts of the lip and palate requires a knowledge of the development of these parts in early embryonic life. The common buccal and nasal cavity is formed by the growth of the mandibular arches from either side; from these are developed the lower jaw and the tissues which enter into the formation of the lower lip and floor of the mouth. The common cavity is then divided into buccal and nasal cavities by the development of the hard palate from the horizontal outgrowth of plates from the maxillary process. Further, the nasal cavity is divided into two by the downward growth of vertical plate of the ethmoid and vomer from the fronto-nasal processes. A failure of union between these different parts explains the occurrence of the various types and degrees of congenital deformity in the lip and palate.

The real etiology is not definitely known. Most of the theories, as those assigning the cause to tumors, supernumerary teeth, iuetic infection and intra-uterine injuries, are merely unverified beliefs. In almost every case ascribed to maternal emotion a careful history-taking will reveal that the mental fright, so vividly recalled by the mother, occurred at a period in embryonic life later than that at which fusion normally takes place. Animal experiments and investigation make the theory of improper nutrition during the early months of gestation quite easy of belief. The observation has been made at the London Zoo that, when the pregnant lionesses were fed meat containing bones too large to be chewed, the cubs



2. Complete cleft lip and palate, before and after operation.

had cleft palates, but when fed meat with small or soft bones their cubs appeared normal. In the zoological gardens at Berlin thirty-two jaguars, born of one mother by the same sire within one year, all had cleft palates and all died. The parent animals had been fed on cold meat from which the blood had been allowed to escape. Three years later they were fed meat still warm and containing blood, and since then there were two litters a year, about twenty-five jaguars, and none of them had a cleft. Petrus Olsen, the keeper of the animals, stated that he was able to eliminate cleft palate and lip in all animals of this family.

When embryonic fusion fails the resulting fissure is widened by pressure of the tongue, which at this time of intrauterine life completely fills the mouth. Pressure under the chin forcing the mandible upward and within the superior alveolar processes is responsible for further separation of the maxillae and the forcing upward of the inclined planes of the palate. In congenital cleft palate there is no evidence of tissue loss or lack of structural development; it is simply a failure of maxillary union and the amount of separation at the cleft practically represents the excess width of the upper jaw.

As to the best method of closing the palatal breach surgeons are not in accord; some favor bridging the gap with soft tissue, either by sliding muco-periosteal flaps, after Langenbeck, or by turn-over flaps, after Davis-Colley, Ferguson and Lane, while others endorse the osteoplastic closure championed by Brophy. Basing his method on the fact that there



1. Bilateral complete cleft lip and palate, before and after operation.

*Read before the Jefferson County Medical Society.



3. Unilateral alveolar and lip cleft, before and after operation.

is developed a full amount of tissue Brophy argues for approximation of the ununited segments of the maxilla at an early age so that when the upper teeth are erupted they will exactly meet those of the lower jaw. In suitable cases it really seems the logical operation. The bones while yet soft and flexible are brought together by thumb compression and trans-fixed by wires passed from one side to the other above the horizontal bony plates and through perforated lead plates molded to the alveolar arches. In place of silver wire I have been using with increased satisfaction phosphor-bronze wire; it has a greater tensile strength, withstands the necessary amount of twisting and, if its temper is properly reduced, it is equally as flexible as silver wire.

The Lane turn-over flap method is suited to a nicety in some cases. A large muco-periosteal flap hinged at the cleft margin is turned from one side and imbricated under the flap of the opposite side, thus covering the cleft with soft structure. There is, however, considerable risk of flap necrosis when the entire flap is turned at one sitting, the resulting operative failure becomes surgically irremediable and then is benefited only by artificial appliance. A stage sequence is a safer procedure, to turn first the anterior portion of the flap and, when assured of its viability, to complete the overlapping at a later time. Twelve years ago I saw Lane do his operation; I am reliably informed that he has since adopted the step method and from this it may be reasonably inferred that the master technician himself has also experienced the disappointments many of us have had in following closely his original technic.

The old operation of Langenbeck for closing the hard palate yet continues popular with many surgeons. Through

lateral incisions just within the alveolar process muco-periosteal flaps are freed from the bone and approximated in the middle line.

In every case of cleft palate the type of operation should be carefully chosen. Needless to say that it is the first operation that offers the best prospect of success and that every additional operation means further loss of tissue elasticity. Many of the operative failures may be attributed to unfavorable conditions and technical difficulties over which the surgeon has no control, but bad results may be consistently expected when any one method is arbitrarily employed in unsuited cases.

Closure of the soft palate may advantageously be deferred as the last operative step, although not later than the eighteenth month, because best enunciation obtains when this part of the operation is done just before the child learns to talk. Once the faulty cleft palate speech is acquired it is never overcome, however perfect the belated operation. Functional improvement in neglected cases depends on subsequent phonetic education and training.

Early closure of the cleft lip is strongly advocated. The constant gentle pressure of the repaired lip upon the underlying bones unquestionably furthers their better alignment. No operator experienced in this sort of work is materially hampered by it in subsequent work on the palate; at any rate, the advantage of an early closure outweighs the additional working space an unclosed lip may afford.



4. Complete cleft lip and palate, 26 days after operation, age 2 9-10 months.



5. Secondary repair of lip cleft, before and after.

The hare-lip operation should not be regarded as a trivial procedure, for an imperfect operative result remains to the final day conspicuously evident to mar a life's happiness and probably a career. Cosmetics success is largely determined by the operator's artistry in restoring the symmetry of nostril and vermilion border, in fashioning a full and pliable lip and in minimizing the visible scar.

To this end is advised the free separation of the lip from bony attachment, simplicity of incisions, economical paring of flaps, the plan to cut and fit as you go, and the careful placement without tension of the sutures.

Autogenous Vaccines in Recurring Urethritis. —Gripekoven insists that new autogenous vaccines have to be made from time to time when the gonococci still lurk in the tissues. The benefit from this was particularly striking in a case in which no gonococci had ever been found, even from the first. A minimal number of gonococci had evidently persisted and had induced two local recurrences, although the man had repeatedly been pronounced cured by different physicians. Gripekoven cites a number of similar cases, some of from two to fifteen years' standing. Various specialists on different occasions had pronounced them cured, and some had married, but the latent urethritis flared up anew at times. Nothing but autogenous vaccines seems able to disclose the lurking gonococci responsible for the recurring urethritis and help to eradicate them.

SKIN GRAFTING, WITH REPORT OF UNUSUAL CASE

BY J. D. NORTHCUTT, COVINGTON

Because of its being less spectacular, together with its seldom being an emergency, dermal plastic surgery has assumed a minor role until the past few years. There are cases, however, that become quite an emergency, such as the one we shall report tonight.

There seems to be little new in this particular field of work, as most of the very difficult methods now being used are only revivals of methods attempted years ago.

Jobi Meekren transplanted the skull of a dog to fill a defect in the cranium of a soldier 243 years ago. The operation was successful, the transplant lived, but the church considered it improper that a man should retain the bone of a dog in his skull and forced the surgeon to remove it.

Improvement in the methods have attracted great attention, have placed this class of work in the limelight. It has relieved untold suffering, has improved usefulness, but probably the greatest good coming from this particular line of work is its abundant relief of mental embarrassment given to the unfortunately disfigured.

It seems that this particular line of work has had but little attention paid to it by the general surgeon ordinarily. There is need of our becoming more familiar with the modern methods and to take advantage of the wonderful development in this work being done by leading men. In digging through heaps of literature, as it is necessary for preparation of the writing of a paper of this nature, it was gratifying to see that most of the writers agree in the general procedure. Nearly every tissue of the body has been transplanted successfully. But transplanting of skin and mucosa has been by far the most successful.

Some of the purposes for transplants and skin grafting are: For the removal of scar tissue, which is producing deformity by its contracting and lessening muscular function; to hasten repair in large denuded areas, by trauma and burns, where skin is destroyed; for the removal of keloids; for the treatment of basal cell epithelioma; for the transplanting of large lipomata; in the removal of non-malignant breasts; for the repair of scar due to acne; for ptosis and paralysis;

*Read before the Campbell-Kenton Medical Society.



1. Showing area from which pericranium was torn. This area shows white.

for deformities and malformations of nearly every nature; for the treatment of empyema; for repair of bile ducts, urethra, ureter, stomach, intestines and tendon transplantations of a knee and an elbow has been done successfully. We are merely mentioning the extensiveness of this work and, of course, shall not attempt to discuss the major features, but will confine this paper to skin grafting.

Naming the methods used, not in their importance, but as appears to be in their simplicity. We would say: The Thiersch method, Wolf-Krause method, Reverdin method, Jump-Flat method, Pedicle Flap together with the tubing of the pedicle.

The Thiersch method seems to be the one most commonly used. It is used in large granulating surfaces and these grafts are best taken from the flexor surfaces of the thigh, upon the arm and the sides of the chest.

The reasons are that these areas are more nearly free from hair follicles, which lessens the likelihood of infection and for cosmetic purposes more sightly. The preparation of the part to be grafted is sometimes very difficult, especially if you have exuberant granulating area and worse still if it be infected. To handle the over-abundance of granulation is not so difficult, but, that with the infection is difficult indeed. If there be no infection, the extra-granulating surface can be cut away and by dry compresses with considerable pressure, render this surface firm and healthy, which is necessary for the grafting. But, if infection be present, this procedure would be useless. It is practically impossible to render an infected granulating surface entirely bacteria free, but it can be so nearly so that grafts will live by making frequent smears from the excretion and when the bacteriologists say there are few bacteria

present and the surface appears to be healthy, other things being equal, grafting will probably be successful. In so far as we know there are no cut and dried rules when this can be done. In our opinion, the very best method of rendering an area of this nature bacteria free is to expose it to sunlight. Care will be taken against condemning too strongly the many antiseptics and bactericidal solutions. But, in this case, all of the following were vigorously and persistently used with absolutely no results: Dakin's solutions, chlorozine tea, bichloride of mercury, saline, iodine, hot potassium permanganate and argyrol. But, when exposed to sunlight within forty-eight hours, the results were almost unbelievable. To describe the Thiersch method in a simple way and in as few words as possible, would say that if the skin from where the grafts are to be taken has been rendered surgically clean and the parts to be grafted have been made raw, that with an extremely sharp instrument, razor preferred, and with holding the skin tense and with a sawing back and forth motion, cutting down into the corium and strips about one (1) inch wide and two to three inches in length may be removed. Instead of placing them in warm, normal saline, as has been recommended, carry the grafts directly to the parts to be grafted on the instrument and with a long, sharp needle catch the graft and slip the razor from under the graft at the point desired. This will avoid rolling up of the graft and there certainly can be no objection to the immediate placing of a transplant. All bleeding should be controlled with warm saline compresses. In the case being reported tonight two months were consumed in preparing the granulating surface for grafts, which may seem a very long procedure. But in look-



2. Showing area from which pericranium was torn extending backward.



Patient two months after accident, showing retraction of eye-lids. ing up the literature, a case was found, reported by Da Costa, where the avulsion of a scalp had been treated over a period of four years with the use of 12,000 grafts before getting results. There are many similar cases reported, which were treated over considerable periods of time, with end results not so pleasing, so we prepared for a tedious task.

The Wolf-Krause method is simply the grafting of the whole thickness of the skin, not the fat nor subcutaneous tissue. In this method the graft should be considerably larger than the part to be grafted. One writer says one-fourth larger. In our opinion, it depends upon the judgment of the man doing the work. The grafts should be taken with as little trauma as possible. The pale anemic grafts do better than the congested red grafts. This should be done by a perfectly dry method. The grafts held in position, if necessary, by sutures and pressure applied.

The Reverdin method is not being used so much. It is used in small scar areas and especially those produced by acne. This is, of course, where the grafts are taken by picking a small pledget of skin with a sharp needle and cut under the needle and doing an immediate transplant. These grafts being about the size of a grain of wheat. It is said to do better than the Thiersch method in infected areas. They should be placed about one-half to one-fourth of an inch apart, as they seldom grow larger than a dime. Neither the Thiersch nor the Reverdin methods retain their follicles or glands.

The Jump-Flat method is in reality the Wolf-Krause method described differently.

The Pedicle-Flap method with the tubing of the pedicle is a method most frequently used in filling defects of the face. Occasionally it is necessary to raise the

pedicle and tube it, leaving the flap attached in order to establish or to develop a circulation, these pedicles should be made parallel to the circulation with the same precaution as to trauma and contamination as in other work. It is believed that a transplant in a basal epithelial ulcer has an inhibiting influence on the cancer cells. This is claimed by Horsely, who has successfully performed the operation.

Grafts should always, if possible, be taken from the person to be grafted. If it becomes necessary to do heterographing the donor should have a blood Wassermann and the elimination of other transmittable diseases through the skin.

Zoo grafting has been done successfully, but these are among the wonders of this work and not practical. Even the heterographs, when taken from the mother, which is the best and safest, will live a considerable time and then gradually fade away.

Skin grafted into mucous membrane will partake of the nature of mucous membrane; the same is true of mucous membrane when grafted into the skin. It is impossible, as in many other things, to lay down any certain set of rules, but, in the general care of grafts, the important factors, in our opinion, are: First, cleanliness; second, do not disturb grafts by frequent examinations, and third, be patient. A graft will look bluish, gangrenous and yet, the under surface of the corium may be living, and on the other hand, they may look dry and lifeless and when you undertake to remove them they bleed. Of the two conditions commonly found, when grafts begin to die, the one with the dry appearance is the more serious.

It is necessary to really believe in asepsis to do successful skin grafting. One can boldly perform a spectacular operation with but little regard to asepsis, and quite frequently get away with it, but he who enters here must have clean hands.

The covering of the skull is made up of five layers, the skin, the subcutaneous fat, the epicranial aponeurosis, a loose area of areola tissue and the pericranium; in avulsion of scalp the separation usually takes place in the areola tissue between the aponeurosis and the pericranium. Occasionally the pericranium is torn away leaving the bare skull.

To briefly report the case before us to-



4. Showing living grafts.

night, it is a case of a complete avulsion of the scalp, who entered the hospital January 2, 1923, at about 10 o'clock at night, having come a distance of some eighteen or twenty miles. When examined it was found that the scalp had been torn off completely, the pericranium being torn off the left side of the head to an area about the size of the patient's hand, leaving the bare skull. After a brief examination we called for the scalp and was told that in the excitement, etc., the scalp was at the place of the accident, in a barn on a farm some eighteen or twenty miles away. The following of precedent together with the great anxiety of the patient and family, we secured the scalp and made an effort for its restoration. Was in possession of the scalp at about 12 o'clock. In the meantime an effort to control hemorrhage and the application of hot normal saline packs were applied to the raw surface. The scalp was sutured on at midnight of January 2, and allowed to remain until 10 o'clock a. m. on January 4. And this was an error. Since the restoration of a completely avulsed scalp is impossible, trial only increases the probability of infection. The great anxiety of the parents and textbook recommendations overcame our better judgment and caused us to suture this scalp back. After removing the scalp the patient ran a temperature ranging from 99 to 101, occasionally normal of mornings. We began at once to prepare for skin grafting and had in mind the Thiersch method. On January 24 the patient's temperature began to go up from 103 to 105.8, and from January 24 to February 15, we opened four abscesses apparently under the pericranium. All this while the temperature remaining high

around 105. After we had no more abscesses the temperature still continued to range from 102½ to 105.8 and on two occasions was 106. This state of affairs continued in spite of all the methods that were used; such as spraying and irrigating the head with argyrol, idoine, chlorozine tea, Dakin's solution, hot bichloride, etc., dressing the head two and three times a day, irrigating and applying hot packs of these various solutions, all of which had absolutely no effect on this temperature. Patient had begun to get weak as result of continued infection. At noon on March 2, through disgust, all manner of local applications was discontinued and the head was exposed to the sunlight, the temperature fell to 99 that afternoon and at no time, from that time on, did it go beyond 100. Recently the chart was secured from the hospital and these facts ascertained. Up until this time the skull bared of its epicranium remained perfectly dry and the drilling of small holes through the outer-tables of the skull down to the deploe, in order to secure granulation, was being considered. On close inspection buds of granulation peeping through the cranial sutures were seen; they were at this time no larger than a pin's head, but gradually and slowly spread over this area and finally became firm enough to receive grafts, but it was this condition that prolonged the case. On March 26 the first grafting was done on the right side of the head, this being the side, of course, with no bare skull. The grafts were taken from the inner surface of the left thigh. There were twelve grafts, ranging from one inch wide to three or four inches in length and were placed far enough apart to allow for free drainage, local anesthesia being used. All this while efforts had been made endeavoring to render this area bacteria free, which was never done, but getting down to what was considered as nearly as possible, grafting was attempted. The dressing of these grafts were quite a problem. On one side of the head there was granulating tissue that was less firm and apparently infected to be cared for; on the other, grafts were to be protected. There are so many differ-



5. Photograph of patient six months after leaving hospital.

ent ways to dress and care for these grafts, it was difficult to know where to begin. So the ordinary rubber bathing cap was perforated with a ticket punch about every fourth of an inch. The parts were then covered with sterile vaseline and the rubber cap applied. During the time of grafting the other side and the entire course of this case many different kinds of dressings were tried, but wound up by using the ordinary bathing cap and sterile vaseline, and it came more nearly meeting all conditions. On April 30 the second side was grafted, using fifteen grafts of about the same dimensions as the first and treated in about the same way. The hard part of this case was not the application of the grafts, nor was it the after-treatment, but it was the preparing of the granulating surface to receive the grafts. This patient was in the hospital from January 22, 1923, to September 11, 1923. All grafts lived, although several looked as though they were going to die, but were not disturbed because of an experience in a previous case, where an attempt to examine grafts caused them to die.

SUMMARY

1. Do not try to restore a completely avulsed scalp.
2. Prepare at once for skin grafting.
3. Be clean, gentle and patient.

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BOOK REVIEWS

CLINICAL MEDICINE FOR NURSES

By PAUL H. RINGER, A.B., M.D.

Chief of Medical Services in the Asheville Mission Hospital, Asheville, N. C., on staff of Biltmore Hospital, Biltmore, N. C.

Illustrated second revised edition, F. A. Davis Company, Publishers, Philadelphia, Price \$2.00.

The object of these lectures is to place in concrete form a fairly detailed description of the points in the various diseases that nurses will be expected to observe and interpret, and also to form a basis upon which class-room lessons can be assigned and quizzes held, the teacher amplifying as he sees fit.

PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST. By Joseph H. Pratt, A. M., M. D., and George E. Bushnell Ph. D., M. D. Octavo of 522 pages with 166 illustrations. Philadelphia and London: W. B. Saunders Company, 1925 Cloth, \$5.00 net.

The authors feel that in order properly to evaluate pathologic signs, a thorough knowledge should be had of the localized peculiarities of the chest in health. For this reason they have devoted a special chapter in which the chest in health is discussed in detail.

Unusual consideration is given to the subject of pulmonary tuberculosis the authors believing that after mastery is had in the diagnosis of pulmonary tuberculosis in its various forms the diagnosis of the diseases of the lungs will be found relatively easy.

Pathologic physiology is the approach by which cardiac disease is presented, but throughout the work the point of view of the clinician is maintained. There are, of course, chapters in radiographic examination, on blood-pressure determination and on other graphic methods if cardiac diagnosis.

New and Nonofficial Remedies, 1925, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry if the American Medical Association on Jan. 1, 1925. Cloth, Price, postpaid, \$1.50. American Medical Association, 1925.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually provides the American medical profession with disinterested critical information about the propriety medicines which are offered to the profession and which the Coun-

oil deems worthy of recognition. The book also contains descriptions of nonproprietary medicines which the Council considers worthy of consideration.

In addition to a statement of the actions uses and dosage of each product, many of these are arranged in classes and there classes are introduced by a general discussion of the group; thus the silver preparations, the iodine preparations, the arsenic preparations and the biologic products are preceded by a thoroughly up-to-date discussion of the group.

A glance at the preface shows that, in addition to the description of the new drugs which were accented during the past year, the book has been extensively revised; many of the preparations listed in the previous edition have been omitted and the statements of the properties of others have been revised to bring the descriptions in accord with present day knowledge. Of particular interest is the revision of the general articles; thus the article on endocrine products has been entirely rewritten to bring this chapter in accord with the series of articles on glandular therapy which were published in 1924 under the auspices of the Council. A general article on medicinal dyes has been added.

A section of the book (brought up-to-date each year) gives references to propriety articles not accepted for New and Nonofficial remedies. This list, in conjunction with the book proper, constitutes a cumulative index of propriety medicines which physicians may consult when some propriety product is brought to their attention.

Physicians cannot dispense with the newer remedies that are being brought out, yet they can neither judge them on the basis of the manufacturers' claims nor have they the opportunity or time to determine their merits for this reason every physician should possess a copy of the annual volume of New and Nonofficial Remedies which the Council on Pharmacy and Chemistry puts at his disposal.

MODERN SURGERY, General and Operative, by J. Chalmers Da Costa, M. D., LL. D., F. A. C. S. Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Ninth Edition, Revised and Reset. Octavo of 1527 pages with 1200 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1925 cloth \$10.00 net.

The new edition of DaCosta's Modern Surgery had to be entirely reset. There was so

much new matter to be added that it was among men, at any age when they were necessary to make the page slightly wider and longer.

Among the many important additions are: Buerger's disease and rewriting of the subjects of tuberculosis, shocks, syphilis, blood transfusion, fracture and dislocations, surgery of the respiratory organs, hernia, Cowley's operations for cancer of the rectum, anesthesia, goiter, and x-ray therapy. There is also a new chapter on electrothermic methods in neoplasms as well as a new section on radium.

One of the strongest features of De Costa's Surgery has always been the definite help it affords in surgical diagnosis. This makes DaCosta's Surgery, not only a work on medical and operative treatment of surgical diseases, but also a decidedly helpful work on surgical diagnosis.

Eye Hazards in Industrial Occupations.—By Louis Resnick and Lewis H. Carris.—A handbook for safety engineers safety inspectors, safety committeemen, industrial physicians and nurses; for those responsible for industrial operations, whether owners, managers, or members of the operating staff; for governmental officials, trade association executives, and social agency officers; and for the many others who share the responsibilities and opportunities for conserving the life, health and sight of the millions of men, women and children employed in industry.—National Committee for the Prevention of Blindness, Inc., 130 East Twenty-Second Street, New York City. Publishers Price \$1.50 linen backing, \$2.00 fabrikoid binding.

The Physiology of Mind. An Interpretation Based on Biological, Morphological, Physical and Chemical Considerations. By Francis X. Dercum, M. D., Ph. D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia. Second edition. Reset 12 mo of 287 pages. Philadelphia and London: W. B. Saunders Company, 1925, Cloth, \$3.50 net. This is a new edition of a work, the first edition of which met with pronounced success. It is an "interpretation based on biological, morphological, physical and chemical considerations." Facts are given rather than speculation. The discussion begins with a consideration of the most elementary responses of protoplasm to impacts. Continuing, the slightly more complex structures for the reception and transmission of impacts in the metazoa are given. Then, in order, are considered consciousness, the function of the thalamus, the synthesis of special

sense impressions; the evolution and nature of speech, the function of the striatum and general cortical synthesis

THE CRIPPLE HAND AND ARM—A monograph on the various types of deformities of the hand and arm as a result from abnormal development, injuries and disease, for the use of the practitioner and surgeon, by Carl Beck, M. D. 302 illustrations. J. B. Lippencott Company, Publishers, Philadelphia and London. Price \$7.00. It is the endeavor of the author to consider only the common abnormalities of development and most frequent results of injury and mutilation of the arm and hand which comes into the practice of physicians and surgeons. The book is well illustrated and all the newer methods and surgical features is discussed.

A LABORATORY GUIDE IN HISTOLOGY—By Leslie B. Arey, Ph. D., Professor of Anatomy in the Northwestern University Medical School, Chicago. Second Edition, Revised. 12mo of 96 pages. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$1.25 net.

The purpose of this book is to furnish laboratory instructions adapted to the requirements of any standard course in normal Histology. With the exception of gross anatomy, no laboratory subject today enjoys more uniformity of presentation than does Histology. In the study of the fundamental tissues greater flexibility of treatment exists than in the microscopic anatomy of organs, yet in both definite routine structures must be observed and their inter-relations and significance emphasized. For this reason it is hoped that a laboratory guide designed to accomplish these ends, without reference to the peculiarities of any particular course, may prove useful.

1924 Collected papers of the Mayo Clinic and the Mayo Foundation, Rochester, Minnesota. Octavo of 1331 pages, 254 illustrations. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, \$13.00 net.

The new Mayo Clinic Volume makes available to the entire medical profession the results of the work done at The Mayo Clinic and the Mayo Foundation, University of Minnesota, during the past year. Its appeal is to surgeon, practitioner and specialist, because virtually every field is considered in some phase. Articles of particularly timely interest are those on iodine in goiter, seven articles on diabetes, including two on insulin, three on focal infections, and six on cancer.

OPERATING ROOM PROCEDURE for Nurses and Internes by Henry C. Falk Assistant Attending Gynecologist at the Harlem Hospital; Adjunct Attending Gynecologist at Beth-David Hospital; Instructor in Surgery at New York University and Bellevue Medical College with A Foreword by Eugene H. Pool, M. D., F. A. C. S., Professor of Surgery, Columbia University; Attending Surgeon at the French Hospital with 275 illustrations. New York G. P. Putnam's Sons, London. Price \$2.50.

Practical experience in the operating room is the basis from which the material for this book was derived. Part of the subject matter was first incorporated in a course of lectures, delivered to the operating room nurses at the French Hospital of New York City. With gradual modification of these lectures and with numerous additions, the book was prepared with an eye to general needs. There are two main divisions of the subject matter. The first part deals with the preparation of the accessories used in and about the operating room; the second considers the specific preparation of the operating room for the various operations, most commonly performed in the scope of a general surgical service. The technique of both the preliminary, and the operative procedures is given step by step. Most of the methods described are those in use at the French Hospital.

In the presentation of the subject matter, the aim has been to make the book a practical one.

DIABETIS And its treatment by Insulin and Diet, a hand book for the patient by Orlando H. Petty, M. D. Professor of Diseases of Metabolism in the graduate School of Medicine, University of Pennsylvania, etc., and William H. Stoner, M. D. associate professor of Biochemistry, graduate school of Medicine, University of Pennsylvania, etc., with an introductory foreword by John B. Deaver, M. D.

In no way intended as a substitute for the Physician, this little volume is of real value to the patient in that it defines Diabetes, gives the causes, suggests methods of prevention, and outlines in detail the diet to be followed, to the end that comfort and efficiency be not disturbed.

F. A. Davis Company, Philadelphia, Pa., Publishers. Price \$1.50.

In the second edition many new sections have been included, notably those dealing with the early diagnosis, the prevention and the treatment of the complication of diabetes.

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COUNTY SOCIETY REPORTS

The regular monthly meeting of the Franklin County Medical Society was held at the Capitol Hotel, Thursday March 5th at noon.

Present—Dr. R. B. Ginn, president, Drs. Patterson, Youmans, Coleman, Minish, Budd and Mastin.

Guests—Dr. Hoggin, Osteopath and Mrs. Howard Farmer, Metropolitan nurse.

Minutes read and approved. Reports of committees made.

The subject of the minimum charge to be made for first aid treatment of fractures came up for considerable discussion a resolution was unanimously passed to appoint a committee to consider the matter and report at April meeting with a schedule of fees for fractures. The chair appointed Drs. Patterson, Garrett and Budd.

Dr. Coleman reported a case of a patient seen by him six weeks ago suffering intense pain in left side requiring more than the ordinary dose of opiate for relief. Patient septic with weak pulse and mental dulness, was taken to hospital for observation.

Dr. Patterson saw the patient, after thorough examination and because of rigidity of right side diagnosed Infection Gall Stones. Operation later proved diagnosis correct.

A social hour with dinner was enjoyed. Adjourned to meet in April.

F. W. MASTIN, Secretary

The Third District Medical Society met with the Barren County Medical Society at Cave City on August 12th in the High School Auditorium at 11 A. M. Dr. C. C. Howard, President, was in the chair and there were present about thirty-three doctors.

Dr. W. A. Weldon, of Glasgow, read a paper on "The Use and Abuse of Atropine in the by the General Practitioner," which was discussed by Drs. J. O. Carson, A. T. McCormack and Weldon.

Dinner was served at the noon hour at the Dixie Hotel

Dr. H. H. Hagan, of Louisville read a paper on "The Conservative Treatment of Head Injuries" which was discussed by Drs. Blackburn, Howard, Turner, and Loftus.

Dr. J. D. Trawick, of Louisville, gave a talk on "Kentucky's Crippled Children," and illustrated it by a moving picture film, showing the condition prior to operation and the results accomplished in the treatment of these conditions. This was discussed by Drs. McCormack, Carson, Carroll, Blackburn and Turner.

JOHN J. BLACKBURN, Secretary



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only as mere introductions to the full possibilities of this form of therapy—bear in mind that the Victor Two-Section Mobile High Frequency Apparatus stands out as an engineering achievement that is destined to prove diathermy an important daily factor in the physician's armamentarium.

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KENTUCKY MEDICAL JOURNAL



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No. 11

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THE OWENSBORO MEETING

The meeting of the Kentucky State Medical Association, held under the auspices of the Daviess County Medical Society at the Brown Hotel, Louisville, was unique in many respects, and altogether successful. The program contained a smaller number of essays than heretofore and this gave an opportunity for the most interesting and complete discussions that we have ever had.

Dr. E. R. Palmer, the distinguished president of the Jefferson County Medical Society, delivered both the Address of Welcome in behalf of the Daviess County physicians and the Response in behalf of the physicians of the State, in the happy manner which makes him one of the best loved doctors in Kentucky.

The dinner given to the profession in honor of the Daviess County Medical Society by Honorable J. Graham Brown, the proprietor of the Brown Hotel, was one of the best social events in our history. During the dinner, Dr. Virgil G. Kinnaird, of Lancaster, delivered his interesting Address in Medicine. On the preceding day Dr. John H. Blackburn, of Bowling Green, had made a most scientific address on Cancer of the Breast.

Much important work was done by the House of Delegates. The objection of the Campbell-Kenton County Medical Society to the Medico-Legal work of the Association was presented in the logical and orderly manner which characterizes the second largest of our county societies. After a thorough discussion of the whole subject all of the members of the House of Delegates except those from Campbell-Kenton, who had been instructed to the contrary, voted to continue the Medico-Legal work.

Great interest was expressed in the discussion of the movement to create the Gorgas Memorial Institute as a living monument to the great work of Dr. William Crawford Gorgas, the Surgeon General of the Army during the World war and the sanitarian who cleaned up Havana and made the building of the Panama Canal possible. It was unanimously determined to notify every physician in Kentucky, who is a member of the State Association, to become a member of the State

Governing Committee as one of the founders of the Institute. Within a short time each of our readers will receive letters explaining in detail this movement which we consider the most important ever undertaken by the profession.

Frankfort was selected as the place for the Seventy-sixth Annual meeting, and the following officers were elected, in each instance, by unanimous vote:

Dr. Irvin Abell, Louisville, President,

Dr. J. T. Reddick, Paducah, First Vice-President.

Dr. T. E. Craig, South Park, Second Vice-President.

Dr. W. P. Cawood, Harlan, Third Vice-President.

Delegates to the American Medical Association, Dr. H. A. Davidson, Louisville; Orator in Medicine, Dr. J. A. Orr, Paris; Orator in Surgery, Dr. Charles E. Garr, Lexington; Councilor Second District, Dr. D. M. Griffith, Owensboro, to succeed himself; Councilor Sixth District, Dr. R. C. Mechord, Lebanon, to succeed himself, and Dr. Julian Estill, Lexington, Councilor for the Tenth District to succeed himself.

AN APPEAL FOR HELP

Two movements are under way in Kentucky in which the medical profession is particularly interested. Both originated in the Kentucky State Medical Association and both have been carried to a degree of success not attained in any other state because of their uniform and continuous support by the entire profession of the State, which was gathered to them the support of every other agency is worth while in Kentucky.

These movements are the Kentucky Crippled Children's Society and the Kentucky Tuberculosis Association.

With the very small amount of money appropriated to the Crippled Children's Commission by the last legislature, and the amount raised by the Society, approximately 250 of our 12,000 cripples in the State have already received the hospital care and medical treatment which begins their recovery. No more worthy appeal to the purse strings of the people of the State has ever been made than that of the Kentucky Crippled Chi-

dren's Society. They are asking that \$50,000 be raised to carry them until next June. Every physician in Kentucky was appointed a member of the soliciting committee by the House of Delegates and we hope that each of the readers of the Journal will consider it his job to secure from ten to a hundred members for the Society at \$2.00 each.

The Kentucky Tuberculosis Association is supported by the Christmas Seal Sale. Just twenty-one years ago an obscure postal clerk in Denmark conceived the idea of a decorative stamp to be placed on Christmas mail as a means of raising funds for the care of tuberculous children. Last year their sale in the United States raised a little more than \$4,500,000 through the activity of the 1500 organization allied with the National Tuberculosis Association. This work was inaugurated in Kentucky and successfully carried through for many years under the leadership of the late Mrs. Desha Breckinridge and the tuberculosis sick and death rate of Kentucky has been reduced more rapidly than in almost any other state with the least expenditure of money per capita than any state. Every purchaser of the Christmas seals becomes a participant in this wonderful life-saving work. Dr. J. S. Lock, the Executive Secretary of the Kentucky Tuberculosis Association, is one of the most effective laborers in the life-saving field in this country. He makes the small amount of money he raises go further than any other man with whom we are acquainted. He desires to organize local sales committees in every community.

Write Dr. Lock, at 532 West Main Street, Louisville, giving him the names of those who can be interested in this movement and let's help to make the 1925 Christmas Seal Sale the most productive of any yet held.

THE WOMAN'S AUXILIARY

The most largely attended meeting of the Woman's Auxiliary of the Kentucky State Medical Association held in the four years of its existence was the one at the Brown Hotel on Tuesday afternoon, October 6th. Reports from several counties indicated the developing interest in this movement sponsored by the wives, mothers and daughters of Kentucky physicians.

Mrs. J. Graham Lawrence, of Shelbyville, the retiring president, presided with her usual grace and charm. Mrs. V. A. Stille, of Benton, was elected president, and the other officers are:

1st Vice-President, Mrs. H. H. Bishop, Louisville.

Second Vice-President, Mrs. E. S. Allen, Louisville.

Third Vice-President, Mrs. George T. Fuller, Mayfield.

Fourth Vice-President, Mrs. C. M. Gower, Trenton.

Secretary, Dr. Annie S. Veech.

It is hoped that many more counties will have developed active auxiliaries before the Frankfort session next year.

HOPE AND HELP FOR THE DRUG ADDICTS

Few people of the Commonwealth of Kentucky, especially of the medical profession, are acquainted with the real importance of Senate B. F. Reynolds, Nichols County Kentucky and W. J. Spillard, Narcotic Inspector, and for this reason, I think this bill should be studied by all of us until we are thoroughly familiar with it.

In this county, Fayette, alone, the County Judge has heartily endorsed this bill and admitted without trial by jury or publicity of any kind, a number of patients to the Eastern State Hospital, and the result of this treatment has been far more satisfactory than that of the average institution. I have known, of several such cases, and Narcotic Inspector, Spillard, tells me he has followed up a number of them, noting most satisfactory results. The time required to relieve the patient of all craving for the drug and restore it to a safer physical and mental condition has been much shorter than in the average institution, which specializes in this treatment.

When Government officials, acting in the capacity of Inspector Spillard, interest themselves to such an extent in the unfortunate addicts, as to compare with the medical profession as he did with Dr. Reynolds there is cause for the congratulations and hearty commendation of the entire medical profession.

I would suggest that every physician thoroughly familiarize himself with the commitment papers a copy of which follows:

COUNTY KENTUCKY

STATE OF KENTUCKY COUNTY OF

.....States that he is a citizen and resident of the County of..... State of Kentucky, and has been such for more than one year last past; that he is addicted to the use of narcotic drugs, and hereby consents and agrees in writing to remain the..... State hospital at..... in the..... Kentucky, for a period of six months, or longer, if necessary, for a cure of said addiction to the use of said narcotic drugs, that he is a pauper and has no property and owns no estate of any kind.

This192..

Attest:M. D.
Clerk.....County Court.

We, the undersigned, state that we are duly licensed practicing physicians of.....County, Ky., and that he have been engaged in the practice of medicine for more than two years last past; that we have this day made a personal examination of.....; that in our judgment he, by the use of drugs and narcotics,

to wit: morphine, has lost the power of reasoning correctly and that the power of said..... to reason has been impaired to such an extent as to render him in such a condition, by reason of the use of such drugs, as to be detrimental to his own welfare and the welfare of the public.

.. This.....192...
 Subscribed and sworn to before me by..... M. D.
 .. M. D. and
 M. D.

Clerk This.....192... County Court.

I have personally known of several who have appealed to the County Judge and on the affidavit of two physicians have been quietly admitted without publicity of any kind to the Eastern State Hospital. The time of remaining in the Hospital has in no instance exceeded the number of months mentioned in the commitment in the majority being much shorter than this, and the percentage of relapses within one year have been very small as compared with the result of the average treatment in other institutions.

J. A. S.

ORIGINAL ARTICLES

SYMPOSIUM ON THE SURGICAL ASPECT OF ACUTE ABDOMEN

ACUTE INFLAMMATORY TUBES.*

By CHARLES W. HIBBETT, Louisville.

The most common as well as being, unfortunately, the most serious acute inflammatory lesions of the genital organs, are those involving the Fallopian tubes. In the greater number of cases the tubes once infected are permanently disabled. Cure, in the sense of restoration to normal, occurs only in rare instances; but we cannot tell those cases which will and will not return to normal.

The cause of acute inflammatory tubes is infection. This infection may be with the staphylococcus, the streptococcus or gonococcus, for practically every case of primary acute salpingitis in the adult can be traced to infection from labor, abortion, instrumentation or gonorrhea.

The gonococcus passing nature's obstruction at the internal os, practically "jumps" to the tubes, doing no perceptible damage to the endometrium. The delicate folds of the tubes are well adapted for its reception and growth after it passes the tubal isthmus.

Septic salpingitis may be due to a septic process outward from the endometrium, or the extension of a septic process from the broad ligament.

An occasional infection of the right tube may be due to an acute appendicitis or visceral perforation.

While involvement of the tube in the above conditions is usually limited to its peritoneal

coat, it is of no immediate importance.

It is claimed that the gonococcus is responsible for 60 to 70 per cent of all cases. Bland states it is impossible to determine definitely, for in 50 per cent of his cases the material within the inflamed tube is sterile.

In summarizing the reports on etiology: Gonorrhea is far ahead of all others, being 60 to 70 per cent. Septic infection 20 per cent. Tubercle bacillus 10 per cent, and the few remaining cases are due to instrumentation or faulty technique.

Pathological changes: The tube itself becomes elongated and is swollen to twice its normal thickness. The fimbriated extremities are thickened and agglutinated. This represents nature's method of blocking the abdominal end of the tube to prevent extension of the infection to the peritoneum.

If the process is so acute, in specific cases, that profuse suppuration occurs before the fimbriated end becomes sealed, a quantity of pus may escape into the pelvic cavity. By adhesions of the fimbriated end to neighboring structures, it soon becomes closed so that pus is no longer discharged into the cavity.

The involved tube is usually prolapsed behind the uterus, this being the result of enlargement and increased weight of the tube preceding its fixation by adhesions. If, however, the process is very acute, adhesions may form so rapidly that the tube remains fixed in its normal position. The character and permanent results of tubal inflammation are most marked toward its abdominal extremity.

We have all observed instances in which that portion of the tube near the uterus is comparatively healthy. One author contends that this fact has an important bearing upon the recurrence of gonorrheal salpingitis. The recurrence is due not to a "lighting up" of the inflammatory process in that portion of the tube which was originally involved, but similar in origin to the primary attack, and is dependent upon the fact that gonorrhea of the cervix persists independently so that over-exertion, excessive coitus, etc., may result at any time in a fresh extension from the cervix to the endometrium, thence onward to that portion of the uterine end of the tube which is first occluded.

The symptoms of inflammation of the tube will depend upon the extent of the process and the virulence of the infection, so that the constitutional symptoms may be mild or marked. The onset may be insidious or abrupt, but as a rule it is ushered in by a creepy or chilly sensation, followed by a rise in temperature of moderate degree, the specific cases having a slightly lower temperature than the septic type. The pulse and respiration rates are increased, tongue dry, stomach irritated particularly if peritoneal irritation is pro-

*Read before the Jefferson County Medical Society.

nounced. Leucocytic reaction is present and the count varies.

The patient is seized with severe pain upon one side of the pelvis situated low, and there may be more or less abdominal distension which is usually diffuse in character. These symptoms develop early, and the slightest movement of the body or pressure upon the abdomen causes distress. Leucorrhea is usually present, and menstruation is marked by a profuse and prolonged flow. While the very acute symptoms last only a few days, there is some pain, tympany and elevation of temperature for a considerable period.

Ordinarily the diagnosis of salpingitis is not difficult. There is a history of a suspicious discharge, or an acute inflammatory condition following labor, abortion or instrumentation. This is always suggestive. The patient is usually on her back with thighs flexed. On palpation the abdomen is rigid and tender, the area of tenderness corresponding usually to the zone of peritoneal involvement; rarely, or in extreme cases, is the abdomen tender and rigid above the umbilicus. Further, the extreme tenderness is more marked above Poupart's ligament, and extends from side to side. This is so marked at times that the weight of the bed clothes or hot water bottle gives discomfort.

On vaginal examination the most gentle manipulation of the cervix will cause great pain; the uterus is more or less fixed and surrounded by inflammatory exudate. Further examination reveals tender masses in the sides and back of the pelvis. Sometimes definite masses cannot be felt and the diagnosis is made from a well-defined tenderness of the adnexa which is always pathognomonic. As the infection subsides this exudate is partially absorbed and the tubes become more readily palpable.

The conditions most likely to be confused with acute salpingitis are: Appendicitis and tubal pregnancy, the history of both being rather characteristic. The onset of appendicitis is rather abrupt, with epigastric pain and usually a history of previous attacks. Vomiting is most marked in appendicitis. Moreover, appendicitis tends to become rapidly worse with symptoms of peritoneal extension, or it subsides in a few days. Salpingitis has little tendency to general peritonitis, but local symptoms of an acute attack extend over a longer period. In salpingitis the area of maximum tenderness is just above Poupart's ligament with rigidity on both sides, and usually both thighs are flexed upon the abdomen, while in appendicitis the area of greatest tenderness is over McBurney's point, the rigidity one-sided in the early stage, and one thigh (right) flexed.

Bimanual examination is a most important aid in differential diagnosis and should not be neglected. In uncomplicated appendicitis the vaginal finger discovers no pelvic tenderness and the uterus is not fixed, while in acute salpingitis pelvic tenderness is always present and in the majority of cases the uterus is moderately or firmly fixed and distinct masses may be felt in the adnexa. If, however, appendicitis has implicated the right tube, the diagnosis is most difficult; but in that case the pelvic tenderness is much higher than in a typical, uncomplicated case of salpingitis.

As to the differential diagnosis of tubal pregnancy: In this condition there should be no great difficulty, as in salpingitis the history and constitutional signs of pregnancy are absent. In tubal pregnancy there is a history of amenorrhea in nearly all cases. The pain of extra-uterine pregnancy is sharper and more lancinating than in salpingitis, and is intermittent and one-sided. The pain of salpingitis is constant, throbbing, and usually bilateral. Abdominal rigidity and tenderness are less marked than in salpingitis and may be absent altogether. On vaginal examination in tubal pregnancy the uterus is mobile, soft, enlarged while in salpingitis the uterus is tender, fixed and of normal consistency.

In rupture of tubal gestation profound shock is present. In salpingitis this is absent. A cyst with twisted pedicle may be confounded with salpingitis. The history of the case and early bimanual examination with bilateral disease discovered, is in favor of salpingitis, but there is great chance for error here which it is impossible to eliminate. In case of doubt it is best to operate, for if torsion is present the patient may be saved, or if salpingitis exists operation does no great harm and may possibly hasten convalescence.

Acute salpingitis is not often fatal, especially if it is the first attack, and tends to gradually subside. The usual course is that, after cessation of the acute symptoms, the disease becomes chronic, "lighting up" at occasional intervals into an acute activity of greater or lesser severity.

Under ordinary circumstances the outlook as to life is very good, but as to restoration to health it is not favorable. In a great number of cases crippled organs of the storm swept field remain, so that function may be permanently altered and conception unlikely to occur; and following the acute attack there are weeks and months of semi-invalidism, slight elevation of temperature, abdominal distress, and menorrhagia. Discomfort may persist indefinitely, with occasional acute

attacks which are similar to but not so severe as the first one.

Death from acute infection of the tubes, unless of a severe puerperal type, is the exception, and a fatal form of gonorrheal infection is exceedingly uncommon. Complete resolution of a well-defined case of salpingitis is very unusual, for the lesions produced are generally permanent and incurable by any method except operation. However, many patients recover in a symptomatic sense when treated along conservative medical lines. Acute inflammation of the Fallopian tubes is no longer regarded as a surgical emergency.

The treatment of acute salpingitis is usually expectant, if there is no doubt about the diagnosis. In the septic variety the early treatment is that of the primary disease; later it may become that of acute pelvic peritonitis with pus formation. In the acute-specific variety, whether the attack is primary or recurrent, the treatment is distinctly palliative and medical. The primary indications are to assist nature in her efforts to localize the infection and to keep the patient comfortable until the acute process has run its course.

The general measures I have adopted in this hospital, where we see hundreds of cases each year, are: rest, hot vaginal douches, applications to the lower abdomen, sedatives and enemas. The patient should be placed at absolute rest in bed and remain there during the entire duration of the acute attack. The Fowler position and proctoclysis may be adopted to some advantage. Hot vaginal douches, plain or mildly antiseptic, as indicated two or three times a day, the frequency depending upon the severity of the inflammation. Local applications to the cervix and uterus should not be considered, for they are annoying to the patient, interfere with her rest, and nothing whatever is accomplished thereby.

Local applications to the lower abdomen during the early stage should be either the ice bag or hot water bag, cold being more generally useful than heat. The ice bag should not be continued for more than two or three days. After the acute symptoms have subsided, cold should be replaced by application of hot water bags or hot compresses. I usually allow the patient to be the guide regarding applications of heat or cold; she will soon learn which is most acceptable to her. If, however, cold applications are used at the end of two or three days. I endeavor to switch to the hot water bag or compress.

The intestinal functions should be kept active only by low warm soapsuds and water enemas, cathartics incite peristalsis and favor extension of the inflammatory process. For excessive pain the bromides may be used, and if necessary codeine. The temperature is rarely high enough to need any consideration.

Special measures: If infection has followed labor or abortion, it may be well to explore if possible the interior of the uterus with the finger or dull curette. If infection has occurred through an operative wound of the cervix, remove or cut the sutures to afford free drainage to the inflamed area. If a collection of pus can be demonstrated in the cul de sac, it should be opened and drained by vaginal incision.

Surgical treatment is indicated if the constitutional symptoms continue, and if the process is toward abscess formation as indicated in the foregoing. With the exceptions mentioned, surgical treatment should not be instituted during the acute stage. Operation in the presence of acute infection is more hazardous, is more bloody, and drainage is more often necessary. Moreover, the swollen and edematous state of the ovaries renders it impossible to determine whether they are practically destroyed, whereas after the acute symptoms have subsided it will be found that probably one or both can be retained with safety. Operation deferred means conservation of tissues and decrease in mortality.

If a secondary acute salpingitis appears, the treatment is still expectant but somewhat less conservative than in primary salpingitis. The damages to the ovaries is usually greater, and operation is postponed only until the more acute manifestations have subsided.

Bacteriology of Pleural Effusions.— Among forty-three cases of influenzal pneumonia treated in the Toronto General Hospital in 1919-1920, a seropurulent or purulent effusion was present in 72 per cent. The mortality was 46 per cent. The *Streptococcus hemolyticus*, alone or combined with the pneumococcus, or the *B. influenza*, was present in the pleural exudate in 56 per cent; in one case the *B. mucosus-capsulatus* was found in pure culture; in the others the pneumococcus alone or combined with the *B. influenzae*, *Staphylococcus aureus* or the *Streptococcus hemolyticus* or *Streptococcus viridans*. *Bacillus influenzae*, *Staphylococcus aureus* and *Streptococcus viridans* always appeared in the pleural exudate secondary to *Streptococcus hemolyticus* or the pneumococcus and were never primary causes of the effusion.

ACUTE APPENDICITIS*

By B. F. ZIMMERMAN, Louisville.

The restrictions, which the time limit of this symposium imposes, make it possible to consider only the more important clinical points of acute appendicitis.

Discussions have been so numerous, so varied and by so many different observers, that the subject has become hackneyed and commonplace. Yet in any symposium on the "acute surgical abdomen" it must ever have a prominent place because of its frequency and its gravity.

It is the most frequent acute surgical disease of the abdomen, and parentally always—actually too frequently—part of the symposium on acute abdomen one of the most dangerous. "Every cloud has its silver lining," and the lining of this cloud is woven of the hope and certainty that early recognition and prompt and efficient treatment will result in rapid restoration to health.

In arriving at a diagnosis it is not sufficient merely to recognize the important symptoms, but to determine also the order and sequence of their appearance. The "march of symptoms" if you will, is of the greatest importance. These and the approximate order of their appearance are abdominal pain, nausea, vomiting, constipation, accelerated pulse, fever, leucocytosis, localized abdominal tenderness and localized muscular rigidity.

Any clinical scheme, unless it be comprehensive enough to include all minor and occasional symptoms, and all complications, must be an approximation. Hence in the above outline there may be absence of one or more symptoms, e. g., nausea but no vomiting—or there may be an absence of fever—or the fever may be so slight that it is not detected, but in the main it is a scheme that will prove satisfactory.

Pain, sudden in its onset, is usually first epigastric and later more widely distributed over the abdomen. It varies in intensity with the nature and severity of the pathological process. After a few hours it becomes localized in the lower right quadrant. Coincident with this localization or even before, localized tenderness and rigidity are present in the right iliac fossa. Tenderness and rigidity are caused by irritation of the parietal peritoneum and are not reliable criteria of the severity of the extent of the distribution in the appendix. It is a matter of common experience to see a gangrenous appendix with but slight tenderness and rigidity.

The pain when once localized is often cramp like in character suggesting a partial or complete obstruction of the appendiceal lumen. Subsidence of this type of pain with recession of the other symptoms augurs well for improvement. Cessation of pain gangrenous or necrotic destruction of the wall and impending perforation.

With perforation unless protective adhesions have formed the pain becomes very severe with general abdominal rigidity.

Nausea is usually present early and vomiting may or may not occur. In case of average severity both are present. Emesis is sometimes very severe and may last for hours.

Constipation is the rule. There is usually no suggestion of a feeling to evacuate intestinal contents. In this lies the difference between the pain of appendicitis and that of some forms of intestinal cramps from undigested alimentary contents and other forms of intestinal irritation.

When these striking and well defined symptoms are present the average rational but medically ignorant sufferer makes his erroneous diagnosis and immediately proceeds to apply the remedy, usually a large dose of calomel and rhubarb or maybe epsom salts, and the fond mother, if the victim be a child, proceeds to give Willie a large dose of castor oil.

This first sally meeting with no success, reinforcements are summoned and a more intense attack is made with the same deadly missiles. Failing to subdue the enemy the reserves are called and a final onslaught with more deadly missiles if possible is launched.

When a patient so treated finally comes to operation the appendix has perforated and the magnesium sulphate and castor oil are in the peritoneal cavity. It is, of course, understood that no doctor would prescribe a purgative in such a case as the one described until his diagnosis is clearly established. Should he not go further and instruct his patients not to take one in cases of severe abdominal pain with nausea and vomiting?

The pulse rate, normal at first, gradually climbs as the hours pass, and is given an additional boost as the temperature mounts. In mild cases neither will go very high, in more severe cases, especially in patients with good resistance, the temperature may reach a fairly high degree. Patients with little resistance and a severe attack will show rapid pulse with low temperature and great prostration.

Leucocytosis appears early and is usually

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well-marked. When the count is low a careful inventory of all other symptoms should be made, and if they are mild and the general appearance of the patient good, one is justified in the conclusion that the attack will probably not prove serious.

It should not be forgotten that some very dangerous cases have low leucocytic counts. Such cases are likely to have a low temperature with a weak pulse and the general appearance of a severe intoxication.

Appendicitis requires to be differentiated from acute lesions of the gall bladder, acute pancreatitis, perforated gastric and duodenal ulcer, acute intestinal obstruction, acute pelvic inflammation in the female, nephrolithiasis, and suppurative lesions of the kidneys, and acute pleurisy with or without pneumonia.

The age of the patient may simplify the problem. Appendicitis may occur at any age and is frequently seen in children, whereas many of the diseases above mentioned are practically never seen at this age.

Anatomically the appendix occupies a position intermediate between one group or organs in the upper abdomen, and another group in the lower abdomen, that are frequently the site of surgical conditions. In general it may be said of both of these groups that the preponderance of symptoms begin and remain in their respective abdominal domains, at least to a much greater extent than is the case with lesions of the appendix.

In cholelithiasis and acute cholecystitis the pain is epigastric or right hypochondriac with a tendency to localization in the right hypochondriac region at which point tenderness and rigidity finally develop. The pulse rate is not rapid, in fact frequently below normal. In pure gall stone colic little or no leucocytosis or fever develops, and in cholecystitis the advent of these two symptoms is usually not as precipitate as in appendicitis. Both of these conditions are far more frequent after thirty years of age. Usually there is a history of previous gastric disturbances.

The symptoms of perforation of gastric or duodenal ulcer occur with explosive suddenness. The pain is most excruciating, is epigastric in character, and is associated with severe shock and marked rigidity of the abdominal muscles. Leucocytosis will develop in proportion to the peritoneal involvement. Here, also, a carefully taken history will be of great assistance as most of these patients

will have had those symptoms which are indicative of ulcer.

Acute pancreatitis is associated with severe shock and great prostration. The temperature is often sub-normal. The pain, which is very severe, is deep-seated in the epigastrium and tenderness in this region is exquisite. In severe cases there may be dyspnea and cyanosis. Sometimes a mass can be palpated.

Similarly in such pelvic diseases as acute salpingitis, tubal pregnancy, twisted pedicles, and some diseases of the sigmoid, the symptoms and signs throughout are predominantly those of the lower abdomen. Here again the history will usually furnish valuable data.

Probably the one surgical condition that is most difficult to eliminate in the earlier hours of the attack is acute intestinal obstruction. In its onset it may be identical with the onset of appendicitis—pain, nausea, vomiting, and constipation. A sub-normal temperature, absence of early leucocytosis, absence of tenderness and rigidity, and a greater amount of abdominal distension in obstruction, are important points in the differentiation. Intestinal obstruction is caused by such a variety of lesions scattered over such an extent of the alimentary tract that a carefully taken history is indispensable.

When one considers the intimate relation that exists between the innervation of the parietal pleura and that of the abdominal wall, it is not remarkable that pleurisy with or without pneumonia may simulate acute lesions of the abdomen. Every now and again one hears of an operation for appendicitis when the patient really has pneumonia. This is especially likely to occur in children who are never very definite in describing the location of pain. An examination of every patient would eliminate such mistakes.

In affections of the kidney there is again the same reference of symptoms as in pleurisy and due to the same intimate nerve relationship. There is usually but little difficulty in arriving at a correct diagnosis.

The treatment may be summarized in a few words. No purgatives, no food, and early operation, give the best results.

THE GALL BLADDER IN AN ACUTE ABDOMEN.*

By WM. EDGAR FALLIS, Louisville.

In a paper of this type, and upon a subject that has been so widely discussed by many eminent surgeons and clinicians, it is obvious that I can but mention the salient points that are to be rendered in establishing the fact that the gall-bladder is the offending organ in an acute abdomen.

If perchance I fail to mention some point, or express an opinion that does not agree with your conclusions, I will consider it as a good deed, provided this difference of opinions will stimulate a free discussion of the subject at hand.

The etiology of non-neoplastic gall bladder disease and gall-stones is essentially the same, namely: bacterial infection.

A thorough knowledge of the pathological changes which occur in the biliary tract will aid a great deal in the correct interpretation of the signs and symptoms which are produced.

These symptoms vary a great deal with the different pathological processes, and are the reactions which the patient is producing to the disease. The type of the infection, the resistance of the host, very important factors—in the pathological entities which are found. A mild cholangitis or cholecystitis will produce symptoms less severe than a similar condition which has existed long enough to have caused calculi to be present, while the more serious lesions, as suppurative cholangitis, empyema, or gangrene, will produce extremely grave symptoms.

Since they are the result of long continued traumatism to the tissues, extremely virulent types of infection, or both, together with a host whose resistance is decidedly below par, these signs and symptoms are of grave significance, and may be sequelae of some other recent infection, as typhoid fever, pneumonia, influenza, or any of the infective processes involving the alimentary tract.

The symptoms of acute cholecystitis are usually of moderate severity and short duration, and oftentimes are so fleeting that no medical aid is sought. After several of these attacks the medical attendant is consulted by a patient with a symptom complex that is fairly well defined in type and order of occurrence.

1. The patient complains of a moderate degree of nausea, with some vomiting—there is no appreciable cause in the patient's statements, and there is no history of any dietary indiscretion. The condition is of short duration and is usually relieved by some simple

home remedies, such as saline laxatives, hot alkaline drinks, or emptying the stomach with some simple emetic.

2. There is usually a moderate degree of fever, ranging from 99 to 101 degrees F. This is of short duration, seldom lasting more than a few hours, and oftentimes not known to the patients themselves, though they feel tired, cross and require a lot of water to quench their thirst at these times.

3. There is usually some discomfort in the upper abdomen, and is usually described as "pain in the pit of the stomach." Careful questioning will reveal the fact that the pain is located in the epigastrium, right hypochondriac region, or in the back between the scapulae. This pain is spasmodic in character, and in all probability is due to the muscular contractions of a distended viscus endeavoring to empty itself.

4. Tenderness is present in these early cases only when the gall-bladder is distended. The gall-bladder can be plainly felt by the examining fingers when the distension is marked, at which time the tenderness is very acute and is oftentimes noticed by the patients themselves. If the palpating finger tips are "hooked" under the costal arch on the right side and the patient is instructed to take a deep breath, the tenderness is accurately recorded. As the gall-bladder is pushed downward by the action of the diaphragm, it comes in direct contact with the finger tips. A sudden inhibition of the act of inspiration during this procedure is indicative of active disease.

5. Muscular rigidity is not marked in the early simple cases, and may be entirely absent until the active disease encroaches upon the peritoneal coat of the gall-bladder, or until the distended viscus calls for further protection. Muscular rigidity, when present, is indicative of serious disorder.

6. Jaundice: Ordinarily there is no jaundice. Empyema, ulceration, and gangrene have been recorded without the least evidence of jaundice being present. Therefore, we have come to look upon jaundice as a positive sign of complications rather than a symptom of gall-bladder disease. Jaundice is interpreted as common duct obstruction or hepatic duct occlusion.

7. Leucocytosis: A moderate degree of polynuclear leucocytosis is usually present, ranging in number from 10 to 12 thousand. The differential stain will reveal a polynuclear count of approximately 75 per cent. This differential count is a fairly accurate guide to the amount of destruction that is taking place, and is about the best reliable means we have to date in estimating the resistance of the host to the infecting organism.

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It is my custom to consider a polynuclear count of above 78 per cent as indicative of imminent danger and demanding radical procedure in this class of cases.

8. In passing, I want to mention "The slow pulse." It is a condition very commonly associated with infections about the liver and the biliary tract, and unless we keep this fact constantly before our mind's eye, it is possible that we may place the weight of evidence on the wrong side.

In chronic cholecystitis the symptoms are, practically speaking, those of gall-stones. The two conditions are always associated, and therefore, they will be considered together.

The symptoms in this class of cases are divided into two classes:

1. The colic stage, or the passage of a calculus.
2. The quiescent period.

The symptoms of gall-stone colic are essentially an exaggeration of the symptoms of acute cholecystitis with distension, with or without fever depending upon the presence of an active or latent infection. The nausea and vomiting are much more severe than in acute cholecystitis. The pain is excruciating, intensely spasmodic in character, often radiating to the right shoulder, and persists until the calculus is passed, "drop back" into the gall-bladder, or until some measures are instituted to stop the contractions.

2. The symptoms of the quiescent period are very indefinite, yet they must be considered before an acute exacerbation of an old long-standing condition can be properly diagnosed, and without a careful investigation the history will be incomplete. The patients complain of dyspepsia, with flatulency, sour eructations, constipation, and a feeling of fullness after eating.

The pain in this class of patients at this stage is described as dull, burning, gnawing or boring; it is confined to the epigastrium or back, is independent of the taking of food, occurs as often at night as in the day; and the intervals between attacks may vary from hours to days or even years.

Tenderness is always present upon deep palpation. This tenderness is claimed by some observers to positively indicate the presence of gallstones. I think this is rather an extreme statement, and would much rather say it indicated active pathology. Tenderness at Robson's point is considered by many as characteristic a symptom of gall stones, as the tenderness over McBurney's point is in appendicitis.

There is usually no appreciable enlargement of the gall-bladder unless there is some obstruction below; the recurring inflammatory attacks produce so much thickening by

round cell infiltration of the coats that distension does not occur. Gangrene and perforation are much more likely in these cases, because of the inability of the muscular-fibrous coat to stretch when under tension.

The position of a gall-stone can oftentimes be definitely determined. The most common instance is the recurring jaundice following colic so often seen in common duet stone. Intermittent jaundice severely affects the general health of the patient. By excluding the bile from the intestine it induces rapid loss of weight. These patients are unable to rest or sleep at night because of the extreme itching of the skin. The clotting power of the blood is greatly decreased, and there is present the slow weak pulse of cholemia.

The diagnosis of gall-bladder disease is as a rule not difficult though this rule is not absolute. A carefully taken history of the case along with a painstaking physical examination of the patient, is in my opinion the best method in establishing the diagnosis. It is my practice to get a clear picture of the condition in my mind as possible, and then to use the laboratory to corroborate my clinical findings. It is not my purpose to underestimate the valuable information that the laboratory can give us, but to encourage the practice of history taking, physical examinations and physical diagnosis, then to use the laboratory in checking the tentative working diagnosis.

Treatment: The treatment of practically all gall-bladder disease is surgical. In the simpler types of cholangitis and cholecystitis we are all agreed that appropriate medical treatment is efficient in relieving the attack; and many patients go along for indefinite periods of time in perfect comfort. This treatment consists of absolute rest in bed, with hot or cold applications to the abdomen, oftentimes Fowler's position is comforting; total withdrawal of food by mouth is imperative, with the institution of Murphy's proctoclysis to maintain the body fluids. When the nausea and vomiting have subsided, and the temperature has returned to normal, sodium phosphate, magnesium sulphate, and alkaline laxative water are given with beneficial results.

In the more severe or recurring attacks of gall-bladder disease, surgical intervention is imperative to obtain the best results. The abdomen is opened in the upper right quadrant by one of the many classical incisions. The writer prefers the incision over the outer border of the rectus, and adding an oblique upper and lower extension if necessary for better exposure.

The succeeding steps in the operation will depend entirely upon the pathological findings in that particular case. It is essential

to make a very careful examination of the entire biliary tract, and this is best done before the gall-bladder is opened, thereby lessening the likelihood of peritoneal soiling or localized peritonitis. If the gall-bladder is markedly distended this cannot always be accomplished, and the tension will have to be relieved by aspirating the gall-bladder before examination of the deeper structures will be satisfactory.

I have found that no hard set or fast rule is satisfactory in dealing with gall-bladder pathology. The condition of the individual patient is always of prime consideration in a decision of the best method to pursue.

Time will not permit discussion of the relative merits of drainage or removal—there is a logical place for both, and I have come to look upon the matter about as follows:

If the walls of the gall-bladder are thickened, gangrenous or damaged beyond repair, the logical procedure is cholecystectomy provided the removal of the gall-bladder does not materially increase the operative risk. If so, I consider it better to drain. A cholecystotomy with drainage in a given severe case will give a fair result and may save a life, even though it may necessitate a subsequent operation, while a cholecystectomy, even though it be a beautifully executed surgical operation may add nothing at this time except an increased mortality rate.

We can expect a certain amount of repair in all tissues and in any condition. When there is a doubt about the patient withstanding the added procedure, give nature a chance to see what she can do, she is a wonderful doctor. Add to this good clean conservative surgery and we will save more lives, make more people happy, and keep down our mortality rate.

Tuberculous Cervical Adenitis in Children.—

McEachern believes that the number of cases of tuberculous cervical adenitis that are transmitted directly from human beings, would undoubtedly be greatly reduced if sufficient hospital and sanatorium accommodation could be provided to take care of persons who are spreaders of infection, or if provision could be made for the care of children from homes in which individuals infected with tuberculosis live. The faucial or pharyngeal tonsil is the portal of entry in the majority of cases of tuberculosis of the lymph nodes in children, and should be removed in every case. Testing for tuberculosis of all cows supplying milk for human consumption should be made compulsory. The sale of unpasteurized milk from any but certified cows should be prohibited. When the disease has not spread beyond the cervical nodes, radical operation with the removal of the portal of entry, if possible,

TUBAL PREGNANCY.*

By GUY AUD, Louisville.

In many cases the clinical picture presented by tubal pregnancy is so classical that the diagnosis is easily made. In others, a correct diagnosis is exceedingly difficult, or even impossible, without an operation, in spite of a most careful history and physical examination. In apparently simple cases surprises are occasionally encountered at operation. More frequently; however, operation reveals tubal pregnancy when its presence had not even been suspected.

It has been the custom in the past to consider the diagnosis of tubal pregnancy under the following two heads, namely: The diagnosis before rupture and the diagnosis after rupture. Since it is rare that we ever operate upon a case that does not show evidence of internal hemorrhage either from rupture of the tube or tubal abortion, it would seem that the diagnosis of tubal pregnancy from this standpoint is entirely inadequate. Again, there must be many cases in which slight and repeated ruptures have occurred in which the symptoms were so vague as to defy recognition.

The clinical picture in the unruptured cases or in those with only moderate intraperitoneal bleeding, is so different from that characterizing those cases in which the hemorrhage is sudden and overwhelming, that Novak has classified them for diagnosis into the following two groups: (1) the non-tragic type, in which there is moderate or no internal hemorrhage; and (2) those of the tragic variety, where the hemorrhage is sudden or perhaps overwhelming. Something like 95 per cent of all cases of tubal pregnancy fall within the first classification, and about 5 per cent are of the second or tragic variety.

In those cases in which the bleeding has been very slight, if at all, we must base our diagnosis largely upon consideration of the following findings: Scanty uterine hemorrhage is a common symptom and is frequently associated with cramp-like pains in one or the other side of the lower abdomen. It might be well to mention here that Polack and Wolfe maintain that there is no uterine bleeding in either intrauterine or tubal pregnancy until threatened abortion has occurred or rupture of the tube has taken place. The patient frequently gives a history of having missed one or more menstrual periods. This is by no means a constant symptom and a majority will have their periods at regular intervals, but the duration will be much longer, often lasting two weeks or more. Pain is probably the most prominent symptom in tu-

*Read before the Jefferson County Medical Society.

bal pregnancy and is thought to be due to blood coming in contact with the peritoneum, rather than distension, contraction, or tearing of the tube. The finding of a unilateral mass on pelvic examination is by far the most important single clew to a correct diagnosis. The mass is usually extremely tender but should not be confounded with the tenderness accompanying acute salpingitis. The uterus is enlarged little if at all.

In cases of tubal pregnancy in which the hemorrhage is sudden or severe there is usually a history of one or more previous attacks of colicky pain with faintness, suggesting smaller hemorrhages. Some patients complain of slight uterine bleeding and pain or discomfort in one or the other side of the pelvis. With the onset of rupture and marked bleeding there occurs acute, severe pain in the lower abdomen and side of the pelvis affected, and with this the classical symptoms of severe hemorrhage. The blood picture shows a high leucocytosis, with lowered hemoglobin and red blood cell count. The abdomen may become rounded, particularly in small, thin women, and in some cases dullness in the flanks may be elicited upon percussion. Bluish discoloration about the umbilicus, a sign described by Cullen, is frequently noted later; but, like most of the symptoms just described, is indicative of severe intra-abdominal hemorrhage from any cause.

Tubal pregnancy is probably more frequently confounded with intra-uterine pregnancy in which there is threatened or incomplete abortion than with any other condition. Since the treatment is so widely different in these two serious conditions, a correct diagnosis is of the greatest importance. Pelvic examination will usually clarify the diagnosis. The finding of a tender one-sided mass, with little or no enlargement of the uterus, would indicate a tubal pregnancy. With enlargement of the uterus and normal adnexa, one would think of intrauterine pregnancy, myomata, acute appendicitis, etc., occasionally must be differentiated from tubal pregnancy, but there is rarely great difficulty in doing so.

The most important consideration in the surgical treatment of tubal pregnancy is the time of operation. Whether the patient is to be subjected to immediate or delayed operation should be governed entirely by her physical condition and the degree of shock from which she is suffering. Patients with little or no intraperitoneal bleeding may be carried along for some time with a fair degree of safety, but there is always present the possibility of a sudden, severe and even fatal hemorrhage. Because of this great danger surgery is the rule. In the tragic cases, where the hemorrhage is overwhelming, little is to

be gained by adding the trauma of an operation to an already profoundly shocked patient. Those who do not die immediately following the rupture will probably respond to proper treatment sufficiently to withstand operation. The depleted blood-stream should be replenished by transfusion whenever possible. If this is not practicable, saline should be administered. Shock should be combatted by the application of artificial heat, the Trendelenburg position, and the judicious use of opiates.

According to Welton, the systolic blood pressure is the most reliable index as to the patient's real condition. He believes that surgery is indicated where the pressure continues to decline in spite of treatment. Also, in cases where the pressure rises and remains stationary, and in cases where it rises and then begins to fall. In a pressure that reacts to, at a maximum, 115, operation is indicated. Cases with systolic pressure under 50 are moribund and rarely ever show a rise of more than 20.

We should not lose sight of the fact that abortion may occur in tubal pregnancy as it does in intrauterine pregnancy. If the abortion is incomplete the bleeding will continue. If complete the bleeding will probably be stopped by plugging the opening in the tube with a blood clot and the patient go on to a spontaneous cure.

Severe Delayed Anaphylaxis.—Guard cites the case of a man, aged 26, on whom a tonsillectomy was performed. During the afternoon of operation, as some bleeding occurred, the patient received two intramuscular injections of "hemostatic serum" (5 c. c. each.) Soon after the injections were made, several pea-sized elevations were noted in the vicinity of the needle puncture. The only aspects of the patient's previous history which might be of interest are that when 7 years of age a severe urticaria followed serum injection for suspected diphtheria. Antityphoid vaccination, at 19 years of age, for military service, was followed by a mild reaction without urticaria. The patient never suffered from hay-fever or other asthmatic symptoms. On fifth day after operation, while resting quietly at home, there was an onset of itching; giant urticaria developed in different parts of the body, more especially the lips and ears. These symptoms were accompanied by severe weakness and nausea. Severe edema and urticaria with symptoms of shock caused a very stormy four days, the patient's recovery often being in doubt, but with epinephrine, sodium bicarbonate, camphor and calcium lactate he did recover.

PERFORATIONS OF STOMACH AND INTESTINE.*

By ISAAC A. ARNOLD, Louisville.

Perforation of the stomach and intestine may be produced by a multitude of causative factors. Among these may be mentioned, perforation of simple or malignant gastric ulcers, perforating gun shot and knife wounds, etc. Intestinal perforations occur from the ulceration of typhoid fever, from penetrating wounds, simple and malignant ulcerations, etc. Necrosis due to thrombosis of the mesenteric vessels is not an uncommon cause. Perforation of the cecum may ensue from gangrenous appendicitis. The intestine may also become ulcerated and perforated by the migration of calculi which have escaped from the gall bladder, and spiculae of bone may penetrate the intestine in pelvic fractures.

One of the most important features in connection with perforation of the stomach and intestine, regardless of the location, is early observation of the patient and prompt recognition of the lesion. It is of greater importance, however, to determine that a serious surgical lesion exists than to diagnose its exact location and character.

Johnson (*Surgical Diagnosis*, vol. II) claims it is unnecessary to make an accurate diagnosis in surgical lesions of the stomach and intestine. When he is uncertain as to the exact situation of the injury, his rule is to make a right rectus incision opposite the umbilicus which enables him to search for and locate the lesion with the minimum amount of trauma to the viscera. The incision may then be extended upward or downward according to the location of the pathology found present.

The differential diagnosis of intra-abdominal lesions are impossible. Quite often the patient merely complains of acute pain in the upper abdominal quadrant; there may be absolutely no history of trauma, ulcer, or gall bladder disease. Sometimes the only information obtainable is that the pain developed suddenly and has been persistent. We know that, as a rule, the clinical picture incident to gastric perforation includes sudden pain in the upper abdomen with retraction and board-like rigidity. The point of greatest tenderness is noted just over the epigastrium. Nausea, vomiting, weak and thready pulse, anxious expression, thirst and subnormal temperature are prominent symptoms; in other words, the patient presents a typical picture of profound shock. These clinical signs appear at once after perforation has occurred. If

the patient survives the shock and if adequate remedial measures are not applied, he soon develops general peritonitis with the characteristic symptoms.

Gastric perforation is commonly confounded with apoplexy or hemorrhage into the pancreas, and sometimes with chronic pancreatitis. The symptoms of perforated duodenal ulcer may closely simulate those produced by gastric perforation, although in the former the pain is usually slightly lower in the epigastrium.

Another difficulty sometimes experienced is in the differentiation between gastric perforation and ruptured gall bladder; and in some instances a calculus in the ampulla of Vater encroaches upon or obstructs the pancreatic duct, thus causing diagnostic confusion. A ruptured appendix may occasionally be mistaken for gastric perforation where the patient is not seen early; but such an error should not be made if the patient is observed within the first hour or two after gastric perforation has occurred.

A carefully recorded history will often be of great assistance in determining the location of the lesion, such, for example, as a history of typhoid fever, chronic intestinal disturbances, recurrent attacks of gall stone colic, external violence, etc. There are several other pathologic states in which reflex or referred pain may be noted in the gastric area and thus lead to diagnostic confusion. This may occur from the so-called renal colic, from calculi resident in the kidney pelvis with obstruction at the uretero-pelvic junction, etc.

If the patient be seen many hours after gastric perforation has occurred, and nature has taken care of the situation by surrounding the lesion by protective exudate, there are other methods of diagnosis more scientific in their scope which may be utilized. These diagnostic refinements need not be described, however, as few patients survive a sufficient length of time after perforation for such measures to be employed.

The final diagnosis of gastric perforation is based upon the clinical findings and careful, painstaking physical examination. It is only necessary to establish the fact that there exists a grave intra-abdominal lesion demanding immediate surgical attention. The exact location of the lesion is usually determined only after abdominal exploration.

Intestinal perforations, other than those due to external traumatic agencies, give rise to symptoms practically identical with those produced by gastric perforations, although they are less severe and are referred to lower segments of the abdomen. In intestinal perforation there is also greater tendency to the development of general peritonitis from

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the beginning.

In traumatic intestinal perforations, such as gunshot or stab wounds, or the penetration of foreign bodies, of course, there is a definite history of the injury. Inspection discloses the point of entrance of the traumatizing agent whatever may have been its character.

In intestinal perforation due to ulceration from thrombosis of the mesenteric vessels, there is a history of severe pain dating from three to seven days previously.

In perforation due to malignancy there is always a history of intestinal disturbance, such as constipation or diarrhea, and there may also be complete or partial obstruction to the fecal outflow. The history will definitely point to the character of the lesion and its exact location. Malignancy may occur anywhere in the intestine, but as a rule it involves the large intestine, either the ascending or transverse colon or the sigmoid.

The treatment of gastric perforation is always surgical, provided the condition of the patient is not too grave when first observed to withstand the shock of operative intervention. It is possible that nature may take care of small perforations, but such cases are so rare that one is justified in advising expectant treatment.

When the surgeon is fairly positive of the location of the lesion, a left rectus incision should be made, as this permits exposure of the damaged area much quicker and with the least possible operative trauma. The latter is very important in the presence of extreme shock. If there is any uncertainty about the exact situation of the lesion, it is better to make a right rectus incision opposite the umbilicus. Through such an incision the entire interior of the abdomen may be easily explored if necessary; that is, it will enable the operator to explore organs such as the liver, gall bladder, gastric area, duodenum, pancreas, cecum, etc.

Many of the patients with visceral perforation are in a moribund state when first observed, making it necessary to do just as little as possible and in the shortest space of time. It may be advisable to simply place a pursestring suture over the perforation, to provide for drainage, and then close the abdomen, postponing further necessary operative steps until the status of the patient will safely permit. In other instances, where the condition of the patient will permit, there are certain technical features to be considered. For example, if the perforation is below the perpendicular level and on the horizontal plane of the lesser curvature of the gastric wall and involves a large area, it is advisable to perform circular resection in line with the circular fibers rather than to simply resect the perforated ulcer which would draw the

fibers to the center at different angles. The latter plan always interferes with gastric motility distal to the involved area and predisposes to recurrent ulceration. If, for good and sufficient reasons, the circular operation is deemed unwise in the special case being operated upon, a posterior gastroenterostomy should be performed. If the perforation is on the perpendicular portion of the lesser curvature, under or near the motor nerve, which extends along the lesser curvature, it is of the utmost importance to preserve the motor influence. This may be accomplished by elevating the serosa together with the nerve, and either resecting or closing the perforation beneath, the object being to protect the motor influence.

In so far as may be possible the technique described should be employed in traumatic lesions as well as perforated ulcers. When successful utilization of this technique is possible, it is unnecessary to perform gastroenterostomy; otherwise a gastroenterostomy should invariably be made at the same time.

In intestinal perforations the surgical treatment primarily involves similar technical principles, but the details may differ radically after the abdominal cavity has been opened. In traumatic intestinal injuries there may be single or multiple perforations, and after the abdomen has been opened careful search should be made for such injuries. If there is simply a single small perforation, such as ordinarily produced by a bullet or knife wound, very often the application of a pursestring suture will be sufficient. In other and more severe injuries, where a pursestring suture would unduly encroach upon the intestinal lumen or interfere with the circulation, it is preferable to perform resection. The same statement holds true in multiple perforations. A single resection may be sufficient, or a second or third resection may be preferable to the removal of a large intestinal segment in order to include two or more perforations. The same degree of care should be exercised in these cases as in intestinal resection for any other purpose to be certain that the nourishment at the side of the resection is not interfered with, as often happens in serious cases because of undue haste in completing the operative procedure on account of the grave condition of the patient. If this precaution be not observed the operation will be followed by necrosis and inevitable recurrent perforation.

In intestinal perforations which occur during the course of typhoid fever the condition of the patient is always extreme. There may sometimes be only one or more pin-point perforations, and in the presence of this grave condition it would probably be advisable to not operate, as it would practically mean a

fatal termination. Under such circumstance it may be better to take the chance that nature will finally close the perforation. I believe this sometimes occurs with complete recovery of the patient.

In intestinal perforations due to malignancy, resection of the involved area must be performed if the life of the individual is to be materially prolonged. In some instances, however, when the patient is first observed, the malignant process has progressed beyond the stage where even resection will prove a life-saving measure. The extent of the malignancy cannot be accurately determined until after the abdominal incision is made, and for this reason surgical exploration is indicated in every case.

In perforation of the intestine caused by thrombosis of the mesenteric vessels, with necrosis of the involved area, resection is the only method of procedure to be considered. Operation should be performed early, otherwise fatality may be expected from peritonitis due to extension of the necrotic process.

In this brief paper it has only been possible to present a general outline of the various phases of gastric and intestinal perforations. It is recognized that each case must be studied individually, and operative treatment varied to meet the indications.

As stated at the outset, it is most important that the patient be seen early, that the diagnosis be made promptly, and that appropriate treatment be instituted with the least possible delay consistent with modern surgical principles.

In every case of gastric or intestinal perforation subjected to surgical treatment, adequate provision for drainage must be made as a safeguard against fatality from peritoneal involvement.

Internal Secretion of Testis.—The testis, through its internal secretion, exerts an important influence on the development of secondary sex character, but Walker concludes it acts as a stimulus to their growth rather than as the source of their origin. The internal secretion of the testis is formed not by the interstitial cells but by the cells of the tubules. The interstitial cells store up nutritive material for the use of the tubules, their function being trophic rather than secretory. If the internal secretion of the testis is only one of the factors regulating the development of the secondary sex characters, too, much must not be expected of treatment by orchitic extracts or by testicular grafts in cases of eunuchoidism in which deficiencies in the rest of the endocrine system exist. Moreover, if the interstitial cells do not form the internal secretion of the testis, the observation that they increased in number after the operation of vas ligature cannot be taken as proof that the output of sex hormone has been correspondingly increased.

INTESTINAL OBSTRUCTION*

By E. S. ALLEN, Louisville.

In a surgical condition, when life is always at stake, when technical skill, judgment and experience of the best operators is demanded, one can but generalize in a paper limited to a few minutes.

Causes: It makes little difference as to the actual pathology that is responsible for the obstruction. The fact that an obstruction to the intestinal flow exists, and that a stagnated, decomposed product loaded with toxins is being rapidly absorbed, demands that relief must be immediate.

Delay in attempting to establish the cause or to localize the obstructing point deprives the patient of so many minutes or hours that could be utilized in his favor. Intestinal paresis, volvulus, intussusception, stricture, appendicitis, Meckel's diverticulum, adhesions, embolism, thrombosis, strangulation through an artificial opening, hernia into the pouch, biliary calculi, are some of the most frequent causes of obstruction and all requiring operative relief. For, in acute intestinal obstruction, the fatal condition resides in the distended bowel, its contractile forces are inhibited, its contents intensely septic, and thrown back constantly into the more healthy bowel, its nerves and other structure traumatized by tension, require the greatest urgency for relief.

Symptoms: They are self-evident, obstruction to the intestinal flow, accompanied by pain, nausea, vomiting, rigid abdomen, increase in pulse rate, normal or subnormal temperature, clammy sweat, anxious expression, all of which are increased as time elapses. The anxious expression, restlessness, and intense pain in themselves are an appeal for immediate relief. The rapid loss of fluid soon dehydrates and an intense thirst supervenes. Shock and toxemia are rapidly lowering the resistance, so that recovery is in inverse proportion to the time the obstruction exists, every hour of delay raises the mortality, medication, compresses, pituitrin, purgatives, etc., all delaying the emptying of the distended intestine of its putrid contents. The one main fact in obstruction is to relieve the intestine of its load of toxic products.

Operation should not be reserved as a last resort. It is the conservative treatment and should be applied at once. Mistakes in diagnosis are not so serious as delay in operation, for the conditions which may be mistaken for acute obstruction require operative treatment.

Preparation: No elaborate preparation is

*Read before the Jefferson County Medical Society.

ordinarily possible in this class of cases, owing to the lack of time and the condition of the patient. Remember that the mortality is due to delay. The stomach should be irrigated before the patient goes to the operating table. Agents for combating shock should be at hand, especially means for saline transfusion. The patient's body should be kept warm.

The abdomen is opened either through a median or right rectus incision, care being exercised in incising the peritoneum, as the most distended intestine is generally the highest and is pressed tight against the peritoneum and might be injured. A small peritoneal opening should first be made to avoid sudden expulsion of distended intestine and with one or two fingers explore the abdomen for the obstructing point. This should be done systematically and not at random. If one or two fingers are unable to accomplish this, the entire gloved hand should be introduced.

As the obstructed coil is usually found in the pelvis, it is well to begin search there. If this be negative, one may examine the ileocecal valve; if the cecum is distended the obstruction is in the large intestine, if collapsed in the small intestine. Beginning with the collapsed segment pass the intestine gently through the fingers and back into the abdomen, following it to the obstructing point, thus avoiding eviscerating the patient. The obstruction located, the incision should be ample for speedy work, taking care with warm sponges to prevent extrusion of the distended coils. If the patient is in extremis, all efforts to remove the cause of obstruction and to make its recurrence unlikely are left until a subsequent time. The surgeon is concerned not only with the relief of the positive obstruction, the actual blockage of the intestine, but more immediately and imperatively with the result of that blockage, with the septic absorption from an obstructed intestine.

It is not sufficient to remove the cause which has brought about the obstruction, but essential to see that the intestines is emptied of putrefactive contents. It does not necessarily follow that because the obstruction is removed that the contents will flow past the site that was obstructed.

Operation for obstruction divides itself into removal of the cause and relief of the obstruction itself. Operation to relieve the obstruction itself: In desperate cases, no attempt is made to do more than to provide escape for the intestinal contents. Under local anesthesia an incision is made and with no attempt to examine the intra-peritoneal region, a distended coil, generally the one presenting, is fixed to the peritoneum with small

silk sutures and, after provision is made for soling, the intestine is opened, a tube introduced and fixed with suture and the intestine allowed to drain.

There are a number of accepted emergency methods for draining the obstructed intestine, which you are familiar with. Relief of the cause of the obstruction and prevention of its recurrence can be accomplished at a time of election.

May I illustrate this by reporting the following case:

Mrs. G., aged 74, had a strangulated femoral hernia of 8 days' duration; she was in extremis. Under local anesthesia the hernial sac was opened. The strangulated loop of intestine had not only become gangrenous, but had sloughed and the sac was filled with pus, feces and rotten shreds of tissue. After thoroughly cleansing the sac, I enlarged the hernial ring and pulled the free ends of the intestine downward sufficiently to permit the introduction of a rubber tube into each lumen. The tubes were fixed with silk sutures and the patient put to bed. No attempt was made to close the wound; quantities of fecal matter drained away. Three days later the abdomen was opened and an end-to-end anastomosis performed. She made an uneventful recovery.

I would like also to report another case I saw recently. A man aged 30, was operated upon one month ago at Jenkins, Ky., for perforated ulcer of the duodenum. Three weeks following operation he had acute pain in the abdomen and vomited. He had stercoraceous vomiting for 3 days prior to coming to Deaconess Hospital. Upon opening abdomen it was with difficulty that I located the cause of obstruction. The entire ileum had herniated through the space behind the gastroenterostomy loop, angulating the ileum about 6 inches from the ileocecal valve.

I had to eviscerate the patient to push the distended intestine back through the opening.

AFTER-TREATMENT.

1. Prevent and combat shock.
2. Give plenty of fluids; intravenous drip is no doubt an emergency method of value.
3. Gastric lavage.
4. Sufficient morphine to give rest.
5. Enemas reinforced with pituitrin.

CONCLUSIONS.

1. Percentage of recovery is reversely proportionate to number of hours obstruction exists.
2. Emptying of intestinal contents more urgent than relief of obstruction.

RENAL INFECTION.*

By STEPHEN C. MCCOY, Louisville.

Owing to the limited time allotted this paper, many important aspects of renal infection cannot be discussed in detail, and brief generalizations will have to suffice. It would be quite impossible to even minutely describe the details of the requisite medical or surgical treatment of renal infection in a paper of this length.

Renal infection may be acute, subacute or chronic, and either unilateral or bilateral. It is bacterial in origin in the vast majority of cases. In the order of their frequency the organisms responsible for renal infection may be approximately stated as:

1. The bacillus coli communis.
2. "Mixed infections."
3. The tubercle bacillus.
4. The bacillus proteus.
5. The staphylococcus.
6. The streptococcus.
7. The typhoid bacillus.
8. The influenza bacillus.
9. The bacillus pyocyaneus.
10. The gonococcus.

Gonococcal infection of the kidney is extremely rare. Of one hundred collected cases of mild renal infection mentioned by Keyes, in which the predominating organism was demonstrated, eighty-five were shown to be due to the colon bacillus.

Among the predisposing or contributing causes of kidney infection may be mentioned: trauma, congestion, urinary retention, chemical irritants, the presence of calculi, toxemia, infectious foci elsewhere in the body, organic and functional disturbance of adjacent structures, pressure from neoplastic formations, and various other factors dependent upon lowered local resistance.

It is worthy of note that the colon bacillus may exist in the urine under quite a variety of forms differing widely in virulence, regardless of whether the urine is acid or neutral in reaction. As a result of the presence of this organism there may be produced a mild bacteriuria, or a serious pathologic renal lesion. The colon bacillus is seldom found in perinephritic abscesses.

Renal infection due to invasion of the staphylococcus and streptococcus may also vary considerably in severity. Since these organisms decompose urea into ammonia and water, thus rendering the urine alkaline, the formation of phosphatic concretions is facilitated. The combination of ammoniacal urine and secondary calculous formation causes staphylococcus and streptococcus renal infection to be especially virulent.

The routes by which invading bacteria reach the urinary tract may be stated as:

1. Through the blood stream or the lymphatics.
2. From the urethra.
3. From adjacent foci of suppuration.
4. From lymphatic or circulatory invasion remote from the kidney.
5. From operative or other trauma.

It is believed that the majority of renal infections are hematogenous in origin, some are undoubtedly lymphogenous; that ascending infection as commonly understood, i.e., through the ureteral lumen, is extremely infrequent. Ascending infection through the lymphatics of the ureter is probably more common than ordinarily supposed.

The clinical picture presented by the various renal infections is oftentimes confusing. And it is at this point we would emphasize the value of information obtained by employment of the various instruments of precision now at hand, and the importance of a thorough and painstaking physical examination, the data thus secured to be tabulated and checked with the laboratory findings.

Pyuria without subjective symptoms may be the only evidence of either chronic pyelonephritis or pyonephrosis; and lesions of the renal pelvis, parenchyma and perinephritic tissues may produce an entirely different clinical picture. Bacteria in the urine demonstrable only by culture methods and without the presence of pus, suggest a latent renal infection. Sufficient bacteria to produce cloudy urine usually mean a severe lesion somewhere in the urinary tract. As a rule the greater the amount of pus, as shown in urine withdrawn from the renal pelvis, the graver the existing lesion.

In perplexing or confusing cases, where by physical examination the possibility of perinephritic abscess cannot be eliminated, one should recall the fact that pus and bacteria are never absent from urine excreted by an infected kidney. Information concerning this phase of the subject can be readily and definitely obtained by employment of the ureteral catheter, and the diagnosis thereby established.

It is noteworthy that every infection of the renal pelvis is attended by sufficient inflammation of the parenchyma to produce a trace of albumin in the urine. The percentage of albumin may totally disagree with urea and phenolsulphonephthalein estimations; the latter, however, are considered more accurate and trustworthy indices of the degree of renal infection; that is, the estimation of renal function is of greater importance than the percentage of albumin present. "Casts are almost as notable for their absence in renal

*Read before the Jefferson County Medical Society,

infections as they are constant in non-bacterial nephritis." Large numbers of casts suggest toxic nephritis, but their absence does not nullify the diagnosis of bacterial nephritis. For example, a unilateral tuberculous kidney discharges pus and albumin but no casts, while the opposite kidney, the site of toxic nephritis—discharges albumin and casts but no pus.

Tension of the renal capsule causes loin tenderness, but actual pain may not be present. Loin tenderness occurs in renal retention and also in focal suppurations. Pain and tenderness are sometimes referred to the opposite hypertrophied and overtaxed kidney. In chronic retention the kidney may be enlarged but not tender. The discomfort characteristic of renal tension may be noted at the costovertebral angle, anteriorly upon either side, or rarely in the appendiceal region. When severe and high in the abdomen, it may radiate toward the umbilicus; when low it may radiate toward the pubis, testis or thigh.

It is well to remember that distension of the renal capsule does not cause frequent and painful urination. Irritation due to calculi or tuberculosis usually excites loin pain and secondary cystitis with frequent and painful urination. Occasionally these symptoms may be due solely to irritation from the presence of calculi in the renal pelvis.

The toxic manifestations of renal infection are those commonly noted from toxemia dependent upon other infective foci, such as visual defects, high blood pressure, arthritis, cerebral symptoms, digestive disturbances, headache, etc.

Differentiation between acute pyelitis, acute pyelonephritis, and focal suppurative nephritis, may be clinically impossible. Cabot states that there is no acute pyelitis without nephritis.

According to Cabot renal infection in infancy is usually seen in girls less than two years old; it is said to be ten times more frequent in girls than boys; and while commonest in infancy, the infection is not infrequent in older children: it may be acute or subacute in character.

The same author claims there are no reliable data on the effect of pregnancy upon chronic renal infection. Cases have been cited, however, indicating the probability that a latent renal lesion is the origin of the infection during gestation. In the early months the bladder urine is oftener found infected than urine obtained from the kidney pelvis, and in such cases the possibility of ascending infection is most frequently acute in type, yet infection must be admitted. While the renal

unless catheterized specimens of urine are routinely examined chronic infection may be overlooked. Acute renal infection is more commonly observed in primiparae than in multiparae; it may occur in the third month; it is progressively more frequent from the seventh month to the puerperium. In most cases symptoms of an irregular urosepsis supervene, varying from a general depression, backache and slight fever, to the more acute and grave types with hectic temperature and repeated chills. Emptying of the uterus may or may not cause subsidence of the acute process; recovery from chronic infection is usually a matter of months. Subsequent pregnancies may not cause a relapse of the acute infection.

It seems a strange observation that sometimes in chronic renal infection with urinary retention, complete destruction of the kidney may occur without the appearance of an acute symptom, the clinical picture being one of chronic urosepsis. Usually, however, "acute symptoms with grave renal deficiency mark the beginning of infection in kidneys that have long suffered from retention."

The diagnosis of renal infection entails no especial difficulty, and such infection should be suspected whenever there is pus in the urine, obscure fever, or toxic symptoms not otherwise readily explained. The diagnosis is based upon information obtained by physical examination, urinalysis, cystostomy, ureteral catheterization, segregation of the urine and microscopical examination and culture methods. The blood picture will sometimes furnish indicative diagnostic points in estimating the balance of functional capacity by determination of the nonprotein nitrogen and urea content. These methods of investigation enable one to arrive at a definite conclusion as to the location of the infection, character of the predominating and secondary invading bacteria, etc., except in the type known as acute nephritis without bacteremia as already mentioned.

Referred pain in the opposite kidney, due to distension and hypertrophy, because of its efforts to compensate for loss of functional capacity of the affected kidney, is a valuable diagnostic sign. Ballotment will often confirm the diagnosis of infected kidney. Tenderness and pain can usually be elicited by pressure at the costovertebral angle. Superficial tenderness in the abdominal wall can be distinguished from the deeper discomfort caused by kidney inflammation by the process of ballotment. Muscular rigidity is greater in perinephritis than in true renal infection. Clinical differentiation between Tenderness due to infection within the kidney and

that due to perinephritis is not always easy of accomplishment. Radiography and pyelography, also phenolsulphonephthalein and other tests of renal function, are important adjuncts in the diagnosis. Renal infection and lesions in other portions of the urogenital tract can be differentiated by careful application of the diagnostic methods already mentioned.

The treatment of renal infection embraces both medicine and surgery. The administration of urinary antiseptics, lavage of the renal pelvis, alkalization or acidification of the urine as may be required, the use of vaccines and diuretics are among the appropriate therapeutic measures to be employed. Existing foci of infection elsewhere in the body should be removed. "The infected kidney requires operation for pyonephrosis and for acute focal suppuration."

To include details concerning the treatment of so-called surgical kidney would unduly prolong this paper. The technique of nephrectomy, nephrostomy, etc., is well understood and has been practically standardized.

In summarizing I desire to emphasize the importance of the following points:

(1) The careful performance of cystoscopic examination in every case where cloudy urine persists and does not become clear under the ordinary tests for phosphates and urates:

(2) The culture of centrifugized urine to determine both the predominating and secondary bacteria:

(3) The segregation of the urine by ureteral catheterization:

(4) The blood chemistry to determine the urea and non-protein content:

(5) The necessity of demonstrating renal functional capacity by the phenolsulphonephthalein test:

(6) The employment of ballotment in physical examination.—note the lack of muscular rigidity and presence of well known percussion signs described by Murphy.

DISCUSSION

J Garland Sherrill: In his paper Dr. Hibbitt expresses contention that has been held for many years in regard to acute tubal disease. In recent years, however, there has been some change in opinion of surgeons regarding these conditions which has received high endorsement of the profession. By early operation in acute tubal disease the woman's recovery is greatly shortened and probably with better outlook for her future. In other words, on account of the time involved and her early capacity, for economic reasons of early operation is of more value than delay.

Dr. Zimmermann reviewed a subject with which we are all more or less familiar, and some of us have rather convincing ideas about it. He mentioned several features that deserve emphasis. One is the fact that any of the so-called classical symptoms may be absent. In one case seen recently and operated upon the patient's temperature was not more than one-half degree above normal. There was no muscular rigidity, and the only thing of which the man complained was pain in the right iliac fossa. At operation it was found he had a ruptured appendix with an enterolith which was probably the cause of his pain. Pain is an important symptom of acute appendicitis when present. The sudden cessation of pain in a case where the symptoms have been acute is a dangerous sign and frequently means that the appendix has ruptured. Of all the causes of death in appendicitis the improper use of purgatives is the great factor. When the medical profession as well as the laity can be induced to cease the giving of purgatives in definite appendicitis cases, in suspected appendicitis cases or in fact in any surgical abdominal lesion, the lower will be the mortality of the surgeon handling such cases.

Dr. Fallis' paper deals to a greater degree with chronic or subacute gall bladder disease than acute lesions. Acute gall bladder disease is a very serious proposition. The symptoms are well known to all of you. The keynote to successful results is early diagnosis and prompt operative intervention. I agree with the statement made by Dr. Fallis that the anamnesis and physical examination are of the greatest importance in arriving at the diagnosis of gall bladder lesions and that the laboratory findings are simply confirmatory.

Tubal pregnancy has been described very clearly by Dr. Aud. I recently exhibited before one of the local medical societies a specimen of ectopic gestation diagnosed prior to rupture in which the diagnosis, I must confess, was made on the clinical history. A young wife missed her menstrual period on January 2nd, 1925. Prior to that time her menstruation had always been regular. She had previously been subjected to operation for inflammatory disease of the right tube and ovary, both being removed. Of course, this somewhat simplified the diagnosis. On January 5th she began having uterine hemorrhage. The bleeding was somewhat irregular but fairly constant and continued until I saw her on January 21st. At that time she had intra-abdominal pain rather constant and severe. I made the diagnosis of tubal gestation based on this history and in addition thought I detected a mass in the left side of the abdomen. I was positive there was an unruptured ectopic gestation. In order that the woman might not be subjected

to a needless operation, however, I ascertained by the introduction of a dull curette that the uterine cavity was empty. Having done that the abdomen was immediately opened. An unruptured tubal pregnancy was found; there was a small quantity of blood in the cavity which came from a left ovarian cyst hemorrhagic in type. There was no hemorrhage from the tubal gestation. Following tubal disease we know there is not much chance of future pregnancy, but the question arose whether in a case diagnosed as early as this it would be wise to "shell out" the pregnancy and allow the tube to remain. Not believing that the woman would again become pregnant under the circumstances, I removed the ovary because it was cystic, and also removed the tube.

With reference to intestinal obstruction: The dangers in intestinal obstruction are two: first obstruction of the circulation of the intestine, and second, the absorption of toxic material from the intestine. The organisms present in the intestine under these circumstances always produce a toxic material that is poisonous to the patient. If injected into another individual or another animal it will produce symptoms identical with those from which the patient suffers. This toxic material entering the blood stream produces depression of the heart muscle to such an extent as to cause the patient to die of toxemia. In handling intestinal obstruction the surgeon should work rapidly, making an enterostomy if necessary, but always getting rid of the toxic material. In dealing with all acute intra-abdominal lesions one should first get rid of all toxic products in the stomach to prevent the patient dying from absorption or aspiration into the chest of noxious material. Moreover, gastric lavage should be practiced, repeatedly if necessary, before the patient is anesthetized and taken to the operating table. Oschner has made the statement that the best method of relieving pain of gallstone disease is by gastric lavage.

Irvin Abell: The subject of acute surgical abdomen is one that from the standpoint of discussion is replete with interest, and when encountered in the experience of our everyday practice oftentimes presents problems that are extremely difficult of solution, particularly in differential recognition of the pathologic lesion that is responsible for the acute abdominal condition. One must consider the intensity of the symptoms and the urgency with which relief is demanded as has been indicated in the papers read in this symposium. If we except possibly lesions of the kidney we can often dispense with the use or advantages to be gained by laboratory diagnosis, which in the more chronic conditions is such a valuable diagnostic aid. As has been stressed, and most correctly, complete analysis

and interpretation of the physical findings are the most important factors in making a diagnosis of acute intra-abdominal lesions. Most of us here, or at least many of us, can remember the time when all diagnosis, medical and surgical were made without any further laboratory tests than examination of the urine and blood. When I entered this hospital as an interne we had no facilities for examining the blood and all we could do was to make a chemical examination of the urine, and upon these findings make the diagnosis. When we now look backward we are amazed how the men then in practice made accurate diagnosis in surgical lesions.

Men like Wathen, Vance and Duggan carefully analyzed the history and physical findings and were known for their ability to recognize acute conditions which existed within the abdomen. If we take the classical pictures which have been presented here tonight we will have little difficulty in recognizing the surgical conditions present, but if we take the borderline cases, or cases in which the symptoms of one lesion overlap the symptoms of another, difficulties will be experienced, and in many instances those difficulties will be overcome only when the abdomen has been opened. For instance, with the appendix situated in the right iliac fossa, if it is inflamed, with the presence of the classical symptoms mentioned by Dr. Zimmerman, pain, nausea, vomiting, fever, leucocytosis, localized rigidity and tenderness, it will be readily recognized. Unfortunately, however, the appendix is not always in the right iliac fossa. There are three mechanical factors operating in the embryological development of the colon which may change the situation of the appendix, viz.: arrested rotation, long mesocolon and transposition of viscera. If the cecum fails to descend, rotate, or if rendered immovable by attachments, the appendix never reaches the right iliac fossa. I have seen appendices underneath the border of the liver and attached to the gall bladder. I have operated upon patients who from the history and clinical findings apparently suffered from gall bladder disease when the trouble was really acute appendicitis. I have also operated under the clinical diagnosis of appendicitis only to find that the lesion was in gall bladder. Lesions involving the lower pole of the right kidney and infections of the perirenal space often give rise to symptoms extremely difficult to distinguish from those produced by appendicitis. The same is true of perinephritic abscesses. The length of the mesocolon often times permits the appendix to descend into the pelvis, where it may become attached to the ovary, broad ligament, urinary bladder or rectum and cause symptoms difficult of recognition.

Cases which have given the greatest difficulty

of recognition in acute conditions within the abdomen have been those occurring in the presence of ptosis. There are two lesions which have not been mentioned here tonight where the diagnosis is often difficult. For instance, wandering spleen, two instances of which have come under my observation. A woman six months pregnant was brought to the hospital with the diagnosis of acute abdomen. She had pain, fever, vomiting, leucocytosis, with a mass above the uterus. My diagnosis was an ovarian cyst with twisted pedicle. Operation disclosed a wandering spleen, the pedicle of which was twisted and hemorrhagic. Another patient was a woman fifty years old with general ptosis of the abdominal viscera came to the hospital with a history of having been ill about a week. She had vomiting, fever, localized tenderness in the right iliac fossa with a mass that I thought was an appendiceal abscess. At operation a wandering spleen with twisted pedicle was found which had become necrotic. Take an individual with marked ptosis, with the liver and kidney in the abdominal cavity, add to the hydronephrosis or empyema of the gall bladder, and great difficulties will be encountered in making a correct diagnosis. I have made mistakes both ways. I thought the patient had a kidney lesion, and operation showed disease of the gall bladder. On the other hand, I thought there was a gall bladder lesion, and operation disclosed a hydronephrosis.

One other lesion not mentioned in any of the papers tonight, which has been of considerable interest to me, is acute pancreatitis. I have had seven cases of this kind. In two of them we made the diagnosis from the history before the patient went to the operating room. In two others after the patient was under the anesthetic palpation over the site of the pancreas enabled us to make a correct diagnosis. In the remaining three the diagnosis was made only after the abdomen was opened. In one the pre-operative diagnosis was intestinal obstruction, in the other two acute cholecystitis. The most important thing for us to recognize in acute surgical abdomen is that the patient has something surgically wrong within the abdomen.

As stated by one of the essayists, the mortality of acute lesions within the abdomen is largely the mortality of delay. Undoubtedly observation will prove that at least sixty-five per cent of the deaths in acute intestinal obstruction are due to delay. Vital statistics show that in this country at the present time there are annually ten thousand deaths from appendicitis. This tremendous mortality seems surprising in view of the study that has been given the subject of appendicitis during the last few decades. The high death rate is due to unnecessary delay which permits extension of the infection. I

think it would be safe to say that one thousand of these deaths are fair and legitimate, the other nine thousand are the result of delay and faulty diagnosis. So the most important thing for us to get first in our minds in dealing with acute lesions with the abdomen is recognition of the existence of such lesions. We will then be in position to apply the proper surgical treatment before extension of infection and destruction of local tissues have supervene. When that is done the mortality will not be so high.

John K. Freeman: Most of us with experience have different methods of diagnosis, and some of them are peculiar to us. I want to mention one important point about the examination of children for appendicitis. I always make an examination through the rectum if an inflamed appendix is suspected in a child. It is surprising how frequently the diagnosis can be perfected in that way, especially if there is much infiltration about the appendix.

John R. Wathen: The first and most important item in acute surgical lesions of the abdomen is to make an early diagnosis, and second, to subject the patient to immediate operation once the diagnosis is made; or, to use an expression commonly employed, "get into the abdomen and get out again just as soon as possible." I think the best solution of the entire problem is to make the diagnosis with the scalpel in acute intra-abdominal lesions.

I cannot agree with those who believe that the stomach should be resected in any case of perforated gastric ulcer. The proper method is to close the perforation and cover it with omentum, completing the operation as quickly as possible.

In intestinal obstruction the patient is often in extremis when first observed. In such cases operation should be performed under local anesthesia and the patient be kept on the operating table the shortest time possible consistent with reasons early operation is of more value and good surgery. In many instances it is inadvisable to search for the point of obstruction. It is too much manipulation of the viscera which kills the patient. Intestinal obstruction itself is not often fatal. If the surgeon will introduce a large amount of saline solution into the circulation and place a tube into the proximal and distal ends of the intestine after division for drainage purposes, the majority of these patients can be saved. One of the most serious complications I have encountered in connection with intestinal obstruction is Meckel's diverticulum. Such cases present many difficult problems in both diagnosis and treatment.

In regard to the question of salpingitis: These cases seldom reach the surgeon in the acute stage. The general practitioner keeps the patient under his observation too long. It was at one

time believed very radical surgery to operate early for tubal infection. It is now known that delayed operations means destruction of the ovary and the formation of dense adhesions, which necessarily complicates the surgical procedure. The tendency throughout the country today is to operate for acute salpingitis fairly early when adhesions are soft and plastic and when they can be easily separated by gauze dissection. Another advantage of early operation is that the ovary can be preserved. We should not wait until the ovary is destroyed before subjecting the patient to surgical treatment. I heartily agree with Mayo that it is best to make the diagnosis with the scalpel in all acute intra-abdominal lesions, that the diagnosis should be made quickly on the operating table, and that surgery should not be too long delayed.

As to perforation of the appendix: I have never seen a case of perforation where the appendix did not contain an enterolith. I believe every appendiceal perforation is caused by an enterolith. If one does not find the enterolith it is because he has not looked far enough for it.

John W. Price, Jr.: This is a most remarkable medical meeting, when all the essayists and all those who have thus far discussed the papers are agreed that acute intra-abdominal lesions are surgical in their significance, not medical lesions, and that everybody is agreed that the sooner the abdomen is opened the better.

In regard to the pathology of salpingitis appendicitis and cholecystitis: These begin first as a stage of all these three lesions is catarrhal, but subsequently the process is advanced to the gangrenous stage. It is fortunate that the first stage of all these three lesions is catarrhal, but the process may be so rapid in every one of them, except the Fallopian tubes, that gangrene and perforation may promptly supervene. I do not believe that all perforations of the appendix are associated with enterolith, although it is admitted a large percentage of them are. I am sure some of the perforations I have seen have been due to obstruction to the circulation on account of infection and localized gangrene, has developed just as gangrene and perforation of the gall bladder may occur where no calculi are found. Of course, there are no enteroliths in the gall bladder. Gangrene of the Fallopian tube is so rare that I do not suppose many of us have seen a case of gangrenous salpingitis. I do not recall having seen a case of gangrenous salpingitis, although I have observed gangrene of the end of the tube where it was associated with a gangrenous appendix. I think the same pathology was present in the tube to cause gangrene that was present in the appendix, namely, disturbance of the circulation plus infection.

The differential diagnosis between acute sal-

pingitis with pelvic peritonitis, and acute appendicitis with pelvic peritonitis, in a young unmarried woman may be very confusing when patient is first seen, particularly if morality of woman is unknown. In other words, if the observer thinks the patient is a virgin and she is not a virgin. It is important that an accurate diagnosis be made because of necessary variation in treatment. If a young woman is suffering with acute pelvic peritonitis, it is always a question in my mind whether it is due to the appendix or the Fallopian tube. It is my custom to administer gas anesthesia to such a patient and make a careful vaginal examination. By this means one can readily determine whether the peritonitis is secondary to salpingitis or appendicitis.

The treatment of acute appendicitis with pelvic peritonitis is immediate surgical intervention. In the treatment of salpingitis with peritonitis I think operation should be delayed until the patient has had a normal temperature for three or four days. Quite frequently the temperature will become normal for a day, but the following day it may rise to 101 degrees Fahrenheit, remaining at that figure for several days and subsequently decline to normal. It is my plan to wait until a normal temperature is maintained for three or four days before subjecting the patient to operative treatment. I do not believe delaying operation until the temperature has subsided to normal in these cases is bad surgery. Neither do I consider it disadvantageous from an industrial point of view, as the patient's earning capacity is not going to be decreased because of the delay. On the other hand, I think by delaying operation in acute salpingitis until the temperature has maintained a normal range for three or four days the convalescence of the patient is very much shortened.

Smirall Anderson: I do not believe acute salpingitis is in any stage a surgical condition, and such a thing as a ruptured pyosalpinx is very, very uncommon. On the other hand, I believe tubal pregnancy in any stage is always a surgical condition and the patient should be operated upon immediately. It makes no difference how apparently moribund the patient may seem after rupture immediate operation should be performed and as soon as the hemorrhage is controlled improvement will begin.

Wm. Edgar Fallis: In conjunction with the diagnosis of tubal pregnancy, particularly in cases where rupture has not occurred: Some writers maintain the position that when ever there is hemorrhage in a case of tubal pregnancy there is practically speaking, always a rupture of the tube.

There is one diagnostic point not mentioned in the papers, and which I have noticed on several occasions in tubal pregnancy, and that is ex-

treme tenderness of the cervix. I have called attention to this fact once before and reported five cases I had seen where this phenomenon was strikingly present. If this symptom has been noted by others I would be glad to know it at some future time.

UNUSUAL TUMOR OF THE LEG.

CASE REPORT. *

By Stuart Graves, Louisville.

A somewhat unusual case came to my notice recently in this way: On my return home about a week ago I took occasion to examine every section that had been made during my absence. I shortly came upon one that had been sent from the Jewish Hospital, of a tumor of the leg. It had a rather peculiar microscopic appearance (I was examining all the sections without any reference to the history or source of the tumor), and made inquiry as to the source from which this tumor came. I was told that it was from the leg. I then asked whether there was any evidence of tumor elsewhere and what was shown by the clinical history accompanying the specimen, and was informed that it came from the leg. The specimen looked suggestive of cancer of the breast, but so far as the history was concerned it was apparently primary in the leg. However, we did not dare make the diagnosis of cancer, because an adenomatous type of cancer primary in the leg is impossible to conceive.

I then called the surgeon and asked if the tumor had any relation to the bone at the site from which removed, and he said that it had seemed to be intimately attached to the bone. I then asked him if there was any possibility of a new growth anywhere else and particularly if the patient had ever had a tumor of the breast. He said that a cancer of the breast had been removed five years ago. Of course this readily explained the development of cancer in the leg, and further showed the importance of sending to the laboratory a complete clinical history with each specimen.

The foregoing reminds me of an interesting medico-legal autopsy I performed some time ago. A woman had stepped off a railroad coach. The step was further than she had anticipated, and she fractured the upper part of her femur. She sued the railroad company for damages. The woman later died and at autopsy I found a rather thickened area around this pathological fracture with what appeared to be a large amount of callus between the ends of the bone. The involved

area of bone was removed and taken to the laboratory where sections were made which proved conclusively that the woman had an adenocarcinoma at the site of the fracture. She likewise had one breast amputated upon years before. It was a rather unusual case.

I mention these cases to show the value of attaching history slips to specimens when they are sent to the laboratory for section. In that way closer co-operation can be secured.

DISCUSSION

J. Garland Sherrill:—The cases mentioned by Dr. Graves are important because we know that in cancer of bone implants do occur from metastasis and the transplants or implants of these growths carry largely the structure of the original tumor. I think Dr. Graves was wise in verifying his opinion by the clinical history in the first case, because it would be surprising to find an alveolar cancer of glandular structure in the leg as a primary lesion. I believe these lesions occur more frequently than generally understood.

It is not very unusual to see a fracture of the bone at the site of malignant involvement.

B. W. Bayless:—I recall having made a roentgen-ray examination in the first case mentioned by Dr. Graves. The tumor involved the thigh at about the junction of the middle with the lower third. The patient was considerably emaciated. There was only slight enlargements of the bone, and it showed marked destruction for four inches along the shaft for three-fourths of the diameter. She had been in bed for some time, and if she had tried to walk she undoubtedly would have had fracture at site of the tumor. There was no attempt at regeneration and it appeared to be carcinoma.

Free Acid in the Stomach Content.—Sahli discusses the futility of measuring the free acidity of the stomach content in the titration methods. Therefore he has abandoned his iodometric titration, and uses another method, which he calls titration of the indicator. He takes 10 c.c. of the filtrate (0.5 c.c.) of a dilute solution of methylviolet. He filtered gastric juice and adds a definite amount adds exactly the same amount of the dye to 10 c.c. of distilled water in another tube of the same caliber. A decinormal solution of hydrochloric acid is added to this colored water (not to the gastric contents,) until the color is alike in both tubes. A third test tube, filled with the filtered contents and held before the tube containing water, makes the comparison of the tint easy. To avoid errors from a too strong dilution of the indicator, he uses a normal acid, if the acidity is too great. For titration of very low acidity, litmus is preferable to methylsiblet.

*Read before the Louisville Medico-Chirurgical Society.

SYMPOSIUM ON MUSCULAR DYSTROPHIES

MUSCULAR DYSTROPHY. *

By C. E. GAUPIN, Louisville.

Etiology: The etiology of this condition, to the present time, can be summarized in one word, "heredity." This is the one factor, it seems, that most authorities on this subject agree upon. All other etiological factors are but opinions and theories, which are difficult to prove and which may have hereditary influence as a background after all.

According to Dana, and Edward Livingston Hunt, the disease begins in infancy, and is more common in boys than in girls, the ratio being 5 to 1. In most instances there is, at least, a hereditary neuropathic condition. Hunt claims that syphilis and alcohol play no part as a cause. Injuries and acute infections may inaugurate the condition, but in these cases the hereditary predisposition has already existed. A few cases have been observed following typhoid fever.

According to Timme, Gowers (in 1879) collected 220 cases from the literature, 190 of these being males. Gowers concludes the disease is almost never known to be transmitted through the father; the transmission being through the mother.

Erb believed there was some connection with this disease and the central nervous system, because of the frequency of nystagmus, diabetes insipidus, chorea psychoses, hysteria and convulsions, as symptoms seen during the course of this condition.

Some observers believe there may be a relation between poliomyelitis and muscular dystrophy, because in the former condition there has been found muscle changes similar to those of the latter.

Of late the endocrine system has been studied as a possible etiological factor. Timme, in an X-ray study of this conditions, reports distinct shadow changes in the pineal gland, which he thinks bear some relationship to this disease. He examined 150 X-ray plates of the head in unaffected persons and found only two with pineal shadows. He further supports his theory by the fact that the gland is supposed to cease its functions at puberty. Erb reports a case which recovered following menstruation, when normal glandular function was restored.

In pineal tumor there is muscular weakness, fatigability followed by inability to

walk, and by contractures. This, the exponents of the pineal theory say, helps to bear out part of their conclusions.

Janney, Goodhart and Isaacson in a study of nine cases, conclude that there is a dysfunction of the ductless glands in which carbohydrate metabolism is affected. Timme also claims many cases have a persistent thymus. Gibson and Martin claim there are endocrine disturbances present and give their conclusions as following:

1. The hereditary character of this disease.
2. The metabolic abnormalities.
3. Occasional recovery at puberty when glandular readjustments occur.
4. Improvement of some cases on endocrine therapy.
5. Development of this disease in polyglandular dystrophies, notably in association with dystrophia adiposo-genitalis.

Changes have been found in the thyroid gland in the form of increased colloid material.

Changes in the suprarenal gland in shape and color have also been noted macroscopically, and the administration of this gland in some cases caused a return of normal blood sugar content.

There is no microscopical, detailed report of the changes in any of these glands, hence we can say so far as the endocrine system is considered as an etiological factor, it is a good theory in some cases, but not a proven entity which will apply to all cases.

Pathology: In-so-far as pathology is concerned, there is little or no disagreement as to the changes that take place in the muscles themselves, the disease is a degenerative atrophy, the process first affecting the muscle fibres and nerve terminals, the connective tissues being secondarily involved.

Microscopically the muscles vary in appearance. Some are hypertrophied, while others are atrophied. The two conditions may exist simultaneously in the same muscle. White bands of connective tissue, as well as fat, replace the normal muscle tissue.

Investigators have differed as to the actual place of the beginning of the pathological process. Some claim the interstitial tissue of the muscles, some the blood vessels and others the muscle fibre itself. Edward Livingston Hunt claims the most probable theory is that the disease begins in the muscle fibre and that the nerve changes are secondary.

There is evidence of some irritation to the muscle fibre, as is shown by swelling, proliferation of muscle nuclei, splitting of the fibre longitudinally, vacuolization and connective

*Read before the Jefferson County Medical Society.

tissue proliferation. At first there is a true hypertrophy, later atrophy with connective tissue hyperplasia. Connective tissue takes the place of muscle fibre and hard, dense myosclerosis results.

In some cases fat is deposited in the connective tissue cells and an extensive lipomatosis may exist. Later these fat deposits are absorbed and there remains only atrophied muscle and connective tissue.

Globus reports two cases where the heart muscle showed the same changes as the skeletal muscles.

Oppenheim doubts if myopathic involvement of heart muscle exists, without giving his reason.

Marinesco states that among the muscles which resist invasion of pseudo-hypertrophic myopathy, we must first consider the cardiac muscle. He further states that reports of involvement of the cardiac muscle are rare, perhaps because few investigators have given sufficient attention to the microscopic study of the organ.

Ross reports the case of a boy of 12, where after a rather sudden death, the heart muscle showed hypertrophy, atrophy and increased connective tissue.

Janney found the urine showed the abnormal amount of this substance.

The blood shows a low creatinin value and a hypoglycemia. There is apparently a delayed utilization of glycogen.

The basal metabolic rate in six cases reported by Mills, Haines and Sessions ranged from $A-22$ to $A+10$.

Spheno-Occipital Eechordosis.—In a series of 200 specially investigated necropsies, Stewart and Burrow found three examples of spheno-occipital eechordosis, a rate of 1.5 per cent. In each case, the little gelatinous nodule arose from the middle line of the clivus, about half an inch behind the posterior margin of the pituitary fossa, and projected through an aperture in the dura matter. There was adhesion to the basilar artery, and in two cases the nodule was torn across in removing the brain from the skull in the third it separated from the bone and adhered to the artery in its entirety. The first (and largest) specimen was from a woman aged 59 who died of advanced polycystic disease of the kidneys and liver; the second specimen, much smaller, was from a man, aged 71, who died of pyemia following suicidal cut throat. He was suffering at the time from advanced silicosis and phthisis. The third specimen was also very small in size, and was from a woman aged 60, who died of cancer of the throat.

JUVENILE DYSTROPHIES.*

By PHILIP E. BARBOUR, Louisville.

The term "dystrophies" may be used in two senses—the dystrophy which is intestinal in origin and which causes a general wasting, and the dystrophy which affects the muscular system. The symposium tonight is concerned with the dystrophies which affect the muscular system, and my remarks will be confined to that phase of the subject.

In general the wasting of the muscles may be due first to lesions of the anterior horns of gray matter and to the related sections of the cords. They are usually classed under the term amyotrophy. In these cases the wasting may be termed extrinsic in origin. The cause lies in the spinal cord and the wasting is due to the trophic changes which are under the control of the large cells in the anterior horns of the cord. It was thought for many years that there was a very distinct line to be drawn between the purely spinal or neuritic cases and those trophic changes which occur in the muscles from disease in the muscular fibres themselves. But the pathologists have been unable to draw this sharp line of distinction and with increased study of such cases there have been shown to be border line cases which could not be referred definitely to either one of these groups.

Progressive atrophy of the spinal type is primarily due to lesions of the spinal cord and are far more common in later life, though there are rare instances of such involvement in childhood. Werdnig and Hoff have recognized a type that occurs in the very young—belonging to the hereditary type.

There are in general, four types of spinal atrophies as follows:

1. Progressive amyotrophy of the hand type or Duchene-Aran type.
2. Progressive bulbar paralysis.
3. Progressive muscular atrophy of the leg type, peroneal type or Chareot-Marie-Tooth type.
4. Progressive spinal muscular atrophy of the spastic type or amyotrophic lateral sclerosis.

All spinal cases will present certain features which point to their spinal origin. There will be fibrillary twitchings, paresthesias, changed electric responses, changes in the reflexes, and loss of control of bowel and bladder.

Secondly, there is a very well defined class of cases in which the lesion is limited to the muscular fibres themselves, to which the term myopathy may be given, of which the best known is the pseudohypertrophic pa-

*Read before the Jefferson County Medical Society.

alysis. Lesions of such nature as to involve important tissues such as the great muscular systems must be profoundly associated with the deepest physiologic functions, for that reason we shall find that the pure muscular dystrophies, or as they should more properly be called, myopathies, are distinctly inheritable. The heredity is more frequently transmitted through the mother, though it more often attacks boys than girls. Babinski has noted that the disease simultaneously attacks those muscle groups which develop at the same time in the embryonal structure.

The onset of muscular dystrophy is usually in childhood, rarely later. The beginning may be very indefinite and only later the awkwardness be associated in mind with the real cause. The progress fortunately is very slow and the termination is frequently from some intercurrent disease to which the patients will lack resistance.

To quote Pfister: The muscular affection in dystrophy presents the following peculiarities: (1) The disease manifests itself in atrophy, temporary hypertrophy, and pseudohypertrophy (increase in the volume of the muscle from proliferation of the connective tissue attended by the atrophy of the muscular element). (2) The individual muscles are not affected uniformly; the morbid process presents a disseminated character and not till later extends to the entire muscle. (3) Fibrillary muscular twitchings are usually wanting. (4) While the electric irritability of the muscles is often diminished so that they sometimes respond sluggishly, the usual law of reaction is not reversed nor is electric irritability abolished except during the terminal conditions. (5) The paralysis is usually flaccid, but in contradistinction to a spinal palsy the muscular tone is often present. Contractures sometimes develop especially in the foot. (6) The tendon reflexes are preserved for a long time and are diminished only in cases of long standing. (7) The muscle fibres exhibit atrophy and hypertrophy as well as increase of the muscle nuclei and fatty degeneration of individual muscle fibres.

There are four types of dystrophy: (1) Erb's juvenile form begins in later childhood beginning in the shoulder girdle but sparing the arms and hands. Later it may attack the muscles of the pelvis, back and thigh. (2) The Landouzy dejerine facio-scapulo-humeral form attacks the muscles of the face first, later the shoulder and arm groups are affected. (3) The so-called hereditary form of Leyden and Mobius attacks children at about the tenth year of age. It resembles the more familiar pseudohypertrophic form in the marked weakness of the muscles of the back,

the lordosis, but the hypertrophy is absent. (4) The most frequent and far the best known type, is the pseudohypertrophic paralysis which usually involves the long muscles of the back, the calf muscles, and the extensor muscles of the thigh. These cases are very striking in appearance and quite characteristic. The calf muscles are excessively large and appear strong but the child cannot walk upstairs, and even upon the level floor the walk is waddling. There is a pronounced lordosis and the abdominal muscles also become very weak. When the child attempt to arise from the floor the back, thigh and calf muscles are so weak that the child has to use the muscles of the arm to raise itself and so seems to "climb up on itself." Eventually the hypertrophy disappears and wasting occurs with remarkable weakness so that they can only lie in bed. Feeding becomes difficult but they may live for long periods, unless carried off by some intercurrent affection.

The prognosis in these cases is hopeless as there are no drugs or other therapeutic agents which will afford any relief. Massage and certain orthopedic contrivances and possibly electricity may postpone the evil day, but even this may be questioned. There are, however, undoubtedly a few cases which have had a certain amelioration of the symptoms for a time, but we do not know what forces nature has evoked to bring this about, and we cannot be sure as to the permanency of that improvement.

Before pronouncing judgment on these cases we must be sure of our ground, and must differentiate the muscular dystrophies from the spinal form of muscular atrophy, and from the neurotic. The characteristic features of muscular dystrophy are the failure to involve the hand and forearm, the absence of fibrillary twitching, the preservation of the patellar reflexes which are usually normal, and the presence of the pseudohypertrophy. Muscular dystrophy is distinguished from syringomyelia by the absence of severe sensory disturbances. The rachitic child may present some disturbances of gait but one ought not to be misled by it. Congenital dislocation of the hip has certain resemblances to the peculiar gait of the pseudohypertrophic, as may also cases of beginning Pott's or a spinal meningitis. If these are kept in mind there should be no danger of making a glaring mistake.

ORTHOPEDIC CONSIDERATIONS OF MUSCULAR DYSTROPHIES.*

By JOHN D. TRAWICK, Louisville.

The two forms of muscular dystrophies under discussion are well illustrated by the following cases; one of which I shall report, of the pseudo-hypertrophic type; the other two (the latter brothers, by the way,) with more evidences of the progressive muscular type, are here tonight for your inspection.

A boy of eight, when first seen presented little of conclusive nature beyond the enlarged calves, and a peculiar gait. However, during the past two years the course has been progressive and lately, rather rapid in retrograde.

The gait has become more awkward, at each step the feet being pulled into extreme extension, stumbling more frequent, running impossible. The child has grown more self conscious and less willing to play. The erector spinæ, thromboids, and quadratus lumborum have become progressively involved, lordosis has increased. The glutei and thigh extensors have so far failed of function that the boy can with greatest difficulty get into an upright position from sitting on the floor.

His maneuvers are very complicated. First he assumes a kneeling position, then falls forward on his hands, draws his thighs and legs up, gradually extends his knees, stands for a moment thus on all fours, then grasping his legs with his hands "climbs up his own legs" until he catches his balance in the erect position. He is easily toppled over, therefore, avoids going to school with the other children for fear of being suddenly pushed or crowded. Falling is an extremely embarrassing accident for the child.

The treatment in this boy's case has consisted chiefly in a careful instruction of the father and mother in best methods to develop the healthy muscles, and conserve as far as possible the degenerating groups.

These two brothers now being presented are members of a large family—eleven children. The history is not entirely clear though we have reports that in the family of one married sister of these men, there are two or three children who are said to be "lame." One other brother is similarly effected to these two cases. Attention is invited first of all to the complete loss of power of maintaining balance. If this man's trunk is flexed forward, as he sits in his chair, he loses all power not only to hold himself, but to recover his upright position after once he has fallen forward. His brother also is losing the power to hold himself erect. There is a pronounced scoliosis in one back, with a ky-

phosis in lumbar region and a complicated left and right curvature in dorsal. In the other back there is a marked lordosis.

In one case there is entire absence of power of abduction of arm at shoulder. Note the extreme wasting of shoulder girdle and arm muscles.

Hands of one patient are particularly interesting, presenting extreme atrophy of the interossei, and of the thenar and hypothenar groups, giving the typical claw hand. Note also the symptom of Gowers described as a telescoping, so to speak, of the head and neck downward between shoulders, when attempt is made to raise shoulders.

The younger brother of these two was materially benefitted for months by a long plaster jacket from hips to axillæ. With it he was able to maintain his balance and to walk but without it was almost as helpless as these two brothers. The equinus with inversion of feet is a notable symptom in the advanced stages of the disease, as is also flexor contraction about knees and elbows.

The orthopedic considerations are interesting more from a standpoint of their anatomical study than from any benefit to be offered by mechanical treatment.

Conjunctival Instillation of Tubercle Bacilli Causes Infection.—The outstanding point of clinical interest in the experiments of Cummins is that the course of the disease varied according to the dose, being rapid and acute in animals receiving the more concentrated emulsions of tubercle bacilli; and taking a chronic course in those in which dilute instillations were employed. These experiments also emphasized the sharp contrast between the type of disease induced by subcutaneous inoculation and by conjunctival instillation of the same strain of tubercle bacillus in guinea-pigs. The subcutaneous inoculation of about 2,000 bacilli led in one animal to death in eight weeks and in another to death in ten, where as the conjunctival instillation of a dose more than 100 times as great produced a more chronic illness, the animal surviving to the twenty-fourth week. The period of survival, seemed to vary inversely with the dose when infection was produced through the natural channel of the conjunctive, while there was no appreciable variation in the time of survival after subcutaneous inoculation with such widely separate doses as 2,000 million bacilli. It appears that perconjunctival infection is of much greater delicacy which is capable of application, in many directions, for the elucidation of tuberculous infection and resistance.

*Read before the Jefferson County Medical Society.

ENDOCRINOLOGY OF MUSCULAR DYSTROPHIES.*

By EMORY L. DRAVO, Louisville.

The present day literature of endocrine disorders is very extensive and a certain proportion of the articles are highly technical and of immediate interest only to the specialist. A larger proportion are articles of merely ephemeral interest such as to ventilate the theories of authors. Endocrinology has been in a peculiar sense an empirical field, but at the present time it seems to be a well recognized branch of medical science and the various diseases are more and more being studied from an endocrinic viewpoint. An unbalance in the internal glandular system is responsible for many syndromes especially in the neuro-psychiatric field and metabolic conditions.

With reference to the muscular dystrophies, endocrinology has a very important application. At first it was thought that all the various types of the dystrophies had their origin in the spinal cord, but later, after several necropsies, types showing high grade muscular atrophy in which no cord changes or peripheral nerve involvement were demonstrated, it developed that there was a class which was independent of pathology in the cord. This type showed unmistakable evidence of disease in the muscular system itself. Still later, after more intensive and exhaustive study, it was shown that the disease process was not only in the muscular system but also in the bony skeleton, the connective tissues, and the internal glandular elements. And as case after case was reported it could be seen that with the muscular dystrophies there occurred a concomitant group of symptoms which were undoubtedly of glandular dysfunction. Such symptoms were those of exophthalmic goitre, or of any hyperthyroid condition, urticaria, acromegaly, prognathism, sexual infantilism, gigantism, and pineal abnormalities.

Several observers reported cases where spontaneous cures had been brought about in the adolescent period which caused them to arrive at the conclusion that the cures had resulted from a restoration of a disturbed endocrine balance. Timme discovered that a large majority of cases showed early calcification of the pineal gland. He further showed that pineal tumor gives rise to many of the symptoms seen in progressive muscular dystrophy, and in fact believes that any pineal involvement is responsible for many symptoms and is to be considered an etiologic factor in dystrophy cases.

In 1917 several investigators made meta-

bolic studies of a number of the various dystrophies and came to the conclusion that the changes demonstrated were similar to those produced by dysfunction or removal of any one of several of the ductless glands notably the thyroid, suprarenal and pituitary. According to McCrudden there is a hypoglycemia in nearly all cases which accounted for the symptom, fatiguability, and distinct value was shown by the administration of pituitary extract and epinephrin.

Because of the muscular changes a study of the creatinin elimination in the various dystrophies was made by Spriggs, and he found that there was a lowered creatinin excretion in pseudohypertrophic muscular dystrophy, myotonia congenita and in myasthenia gravis. Most authors in fact have found a hypoglycemia and a diminished creatinin output, which would indicate that there is surely an associated metabolic dysfunction. Creatinin in the urine is abnormal and is probably allied to the same causal factors that produces urinary creatinin in myxedema, cretinism, dyspituitarism, and Addison's disease, all endocrinopathies.

It is noted that the more recent authors show more and more a marked tendency to individual symptoms referable to the endocrine glands. Older authors reported symptoms of an endocrinic nature in their dystrophy cases but did not classify them as symptoms arising from disturbance of the internal secretions, due to the fact that little was known about such a field and its relation to the systemic diseases. One writer, however, reported a cure in a young girl which he attributed to the normal evolution of the patient. Erb referred to such symptoms in one of his cases as tremor, excitability, difficulty in deglutition, dyspnea, cyanotic hands, diaphoresis, urticaria, intestinal disturbances, and the presence of struma in the neck, all of which showed that he was dealing with a hyperthyroid subject. Several cases were reported to have been complicated by acromegaly, and that a number of cases showed bony changes indicating involvement of the pituitary gland.

Another case reported was that of a woman who developed a dystrophy condition at the age of 41 following a first pregnancy complicated by phlebitis. She soon became bedridden and remained so until her death at the age of 63. Post mortem examination showed changes in the thyroid which had developed a large colloid struma, a tumor in the spleen, softened suprarenals, small pancreas, and atrophic ovaries. This case is suggestive of having developed after a disturbance of the ovaries due to late pregnancy.

These reports all show that aside from the

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muscular atrophy, dystrophic conditions, and the tendon contractures, many symptoms referable to the endocrine organs are presented. To substantiate the endocrine theory there is an absence of signs pertaining to the spinal cord which separates this group of disturbances from the spinal atrophies, such as fibrillary tremor, or in the domain of the sensory roots, such as pain or dysesthesia of any kind. There are no rhinetic disturbances, at least not until very late. Bony developments in most cases show distinct evidence of deficiency such as a rarefaction, trophic in character. Radioscopic examination shows a distinct pineal shadow in many cases. Chemical examination reveals a low blood sugar content and an abnormal presence of creatinin.

Therefore, from several viewpoints the dystrophies are rapidly coming to be recognized as endocrinopathies rather than a disease of the nervous system. In fact the most probable theory is that the neural changes are secondary factors. Many necropsies showed no apparent changes in the spinal cord, not even in the ganglia cells. This has caused many authors to look elsewhere than in the nervous system for the cause of this disease. It has not been definitely proven that the internal glandular system is entirely responsible for the various dystrophies, but many of the symptoms as they appear and the course which is run with development of associated conditions would lead one to feel that the pathology and etiology are based on a polyglandular endocrinopathy. The need of a study of the necropsy findings with special reference to the ductless glands is emphasized. The treatment of the muscular dystrophies is unsatisfactory and will remain so until the etiology is definitely determined. However, many cases have been reported improved by the administration of the glandular extracts, especially the pineal, pituitary, and suprarenal.

TREATMENT OF MUSCULAR DYSTROPHIES. *

By JOHN J. MOREN, Louisville.

When the etiology or pathology of the muscular dystrophies is considered, one is surprised to learn the hopelessness of therapeutic measures. All authors of standard text books upon neurology fail to give any satisfactory remedies. No drug has been known to have caused any improvement in typical dystrophia patients.

In discussing mechanical measures, as electricity and massage, some, Oppenheim and Gordon, regard the use of the galvanic current as of value. Possibly massage is more generally accepted as useful, especially in giving, at least a temporary effect in relieving the fatigue sensations so common in any form of paralysis. Whether these remedies really check or improve the condition is indeed doubtful.

A great deal has been written about the ductless glands, and as in other conditions attributed to disturbed functions, no one gland has been found at fault. The thyroid, thymus, pineal, suprarenal, and pituitary have been accused, but not indicted. Favorable improvement has been reported after the administration of each of the extracts, but there is no uniformity in the report. No cases to my knowledge have been cured. Personally, I have seen no striking or lasting improvement. One patient was given a mixed gland treatment and his father reported a distinct gain in strength and action of muscles. No report has been received from this patient for two or three years. Another case, well advanced, was tried upon the same mixed glands, but no change was noted.

Research work has shown disturbance of the sugar metabolism. It is thought that insufficient glycogen has been furnished the muscles, and Eaton (J. N. & M. D.) has reported improvement in a family of children after feeding sugar.

Farnell, in discussing dystrophies before the Boston Society of Psychiatry and Neurology, says: "I have had under observation for the last seven years a Jewish family of three boys and two girls, with dystrophy. The oldest boy, sixteen years old, has fully developed pseudomuscular hypertrophy with and has to be carried to school. In a third child, a boy of eleven, the disorder is fully developed. The fourth and fifth children, girls of eight and six years, are quite well. There is no evidence of this disorder in either side of the family. A rather interesting feature is the effect of sugar on these cases. By

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feeding them a great deal of sugar and raising their tolerance they become more active, and the two boys who are able to get about seem to last longer at their play. The sugar content in the blood on a starvation diet is usually 90 mg. per 100 c.c. of blood which is somewhat low. The tolerance stays up on the sugar diet. Whether this has any significance in the interpretation of the disorder I really do not know. When the first boy came under my care about eight years ago I began to give him very large doses of pineal gland and for a while he seemed to improve and hold his own. The only additional experience I have had with endocrine glandular substance in relation to pseudomuscular hypertrophy was a marked case of pseudohypertrophy in which the patient for five years has been under large doses of pineal gland, and the disorder today is no further advanced than it was five years ago. In this case also the blood chemistry in relation to the sugar metabolism showed a similar picture. The method that has been used in feeding for sugar tolerance is to give an ounce of honey, preceding the induction by a blood sugar test, and then in one hour to make another examination for blood sugar; a third examination is made two hours after the honey is taken. In these cases the sugar content of the blood will remain up longer than normal. In a normal person the tolerance will rise within the first hour and it will drop to approximately normal by the end of the second hour, which, as I understand, indicates a normal sugar retention. Should the sugar content in the blood remain up at the end of the second hour it is called a high sugar tolerance.

McPherson reported a case which showed no effect or responsible to pituitary extract.

The above consideration applied to those cases developing in early life. Some cases develop after the age of 20 years. Results reported in these are more promising. In 1896 Weiner (A. J. M. S.) reported an apparent cure in a boy 22 years of age, by the systematic use of gymnastic exercise. This patient failed to improve from any other therapeutic measures.

Goldthwaite (B. M. & S. J. 1922) reports a case (patient aged 33) which was apparently cured. This patient showed a hypoglycemia and diminished creatinin. The treatment was rest in bed, attention to correct lordosis, enteroptosis, etc., with small doses of adrenalin and pituitary extract. The results in this case were remarkable.

Such a case might develop from endocrine or metabolic disturbance, and from the fact that they develop later in life lessens the heredity factor, and be more readily influenced by proper measures directed to a

better muscular nutrition. The object is to increase the glycogenic functions, instead of allowing the carbohydrates to be converted and stored as fat.

Preventative medicine might do the most good. It has been suggested that such families should not marry. If the disease has appeared in one child, the other children should not be fed from the mother's breast. Whether this would act as a preventative is not known.

DISCUSSION

Curran Pope: The subject of muscular dystrophy is so extensive that one can only touch the high spots. I want to call attention to the fact that in all these various groups atrophy is the primary condition. True atrophy is nuclear, whereas dystrophy is non-nuclear, but muscular. The word "dystrophy" means "ill-nourished when applied to muscle. Do not let the word atrophy mean to you always pathology, because atrophy may, in a certain sense, be normal. For example: post-partum atrophy of the uterus, the atrophy of disuse, atrophy of the senile state, etc. The chief interest has centered about the pseudo-hypertrophic type. I have seen nineteen cases in thirty-five years of practice. It is only for a short time that they present what I am pleased to call the "stair-step" or "step-ladder" symptoms of "climbing up the body."

These cases of atrophy occur at an early age and the muscles become weak gradually and slowly. The atrophy is of a peculiar type, and I wish I could have arranged to have eight or ten microscopes here tonight as I could show slides of the various types of muscular atrophy under the microscope. We find the hypertrophic cell, the atrophic cell, connective tissue increase, and the mixture that is so often spoken of in text books. In the early stages, and perhaps for many years, cases are not distinctive in their symptomatology or in the conditions presented.

I have had considerable opportunity of studying both the atrophies and dystrophies, and can confirm what the essayists have said with regard to the electrical reaction, in that in dystrophy particularly we find no change either in motor contracture or polar contracture in these cases, but rather a weakened response apparently proportionate to the amount of muscular tissue present in the particular muscle you are contracting. The reflexes are in some manner associated with the muscular capacity to respond. As the muscle degenerates it becomes weaker and weaker and its capacity to respond to peripheral stimulation becomes less and less. It is simply a quantitative change the result of lack of muscular power to produce motion.

Careful sensory tests should always be made in these cases and we will have no difficulty in differentiating that deep sensation is retained, but muscular sensation is gradually lessened in

proportion to the atrophy present.

Another feature to which attention has not been called tonight is that the sphincter muscles are not involved, which is so common in spinal cord involvement, and the same may be said of visceral disturbances that are common in the spinal cord type.

Very recently Dr. Bradley, of the University of Wisconsin, has suggested that the atrophic condition of the muscle in the dystrophies is brought about in the body tissues by changes in the liquefaction of the muscle fibers, and that liquifying of the tissue proteins is due to the presence of enzymes in the muscle cells, hydrolytic cleavage thereafter occurring, with the formation of peptides and amino-acids. This is a very interesting observation, as it may possibly offer an explanation of why exercise and occupational therapy is of so much value. Occupational therapy not only is of value from the standpoint of obtaining actual muscular movement, but in many instances is of great assistance in restoring to some degree the mental balance of these patients, who soon find that they belong to the helpless and hopeless class. Occupation gives them one bright ray of sunshine, enabling them to forget for the time the feeling of the eternal dark shadow of slow dissolution hanging over them.

Personally I have never seen a case of pseudo-hypertrophic paralysis in a female. It is somewhat like color blindness. It is carried by the distaff side of the house to the succeeding generation. In the cases and families that I have had under my care I recall one family where the wife carried a latent tendency toward pseudo-hypertrophic paralysis to her four boys, one of whom is still living. She had two daughters whom I advised distinctly that they do not marry, but should they marry that they do not bear children, as it was hardly fair to the oncoming generation to take the chances of a male child carrying this "white man's burden."

I adhere to the belief that little or nothing, practically nothing, etiologically, is known. Along endocrine lines there have been some recent suggestions that I think look promising. I have had no chance yet to test them. Carnot has succeeded in getting some results from the administration of fetal muscle, which is a new idea, and also by mixed fetal and adult muscle substance. There is no question but pluriglandular therapy is the accepted endocrine method in cases of this kind, but we should not neglect administration of gonadal and suprarenal medication plus any other remedy that may be indicated, whether it be adult or fetal muscle substance, pituitary or pineal gland, or what else may be desired by the attending physician to administer. But here is one point that has not

been touched on in the study of these cases. In our endeavor to reach an understanding of any endocrine condition that might be present, do not depend or base the endocrine administration entirely on what we can find in the patient. At the present day, when there is more or less difficulty in settling in our own minds, except theoretically or by what the text books tell us, as to what particular endocrine substance is indicated, it is necessary that we study the history of the family, the parents, the grandparents, the brothers and sisters and try to establish through them not the endocrine condition of the patient himself, but rather the familial endocrine tendencies—It may be in this way we will get a clearer and better idea of the glandular therapy.

Personally my experience has been the rather sad one that Dr. Moren has mentioned. We try to make these patients more comfortable. We use exercise, manipulation and encouragement, we can give them occupational treatment, we may possibly use massage and electric stimulation, and yet all that we can do is to hope for the best. That is probably the attitude for the physician to take, the position that you are doing the best you can to do something in these cases, although you may possibly tell the family the exact truth of the matter.

One further statement with regard to so-called electric stimulation: I am inclined to think that very frequently the reason why little good is ever obtained from electric stimulation results from two things: **First**, lack of knowledge of the proper current and how to administer it; second the muscles are exercised just like you would exercise healthy muscles with the result that you do far more damage than good. It must be remembered that in electrically exercising these muscular structures it is far better to use too little than too much. After thirty-five years practical daily experience in the administration of electrical currents of all kinds for producing muscular conditions that tendency is always to overdo I think I have seen more good results from the production of muscular contractions by the direct and indirect static sparks than I have from either the galvanic, faradic or sinusoidal currents. One reason for that is that static stimulation does not tend to produce a very firm muscular contraction, not that there is any great advantage in the static current. At the same time it stimulates the sensory condition of the muscle and in that way to a certain extent limits the medical man in his electrical activity.

This is been an extremely interesting presentation of the subject to me, and I think it behooves us every now and then to consider subjects that are interesting solely, you might say, from the scientific standpoint rather than from

the standpoint of therapy, as is so often done.

Wm. E. Gardner: The symposium we have just heard is a classical presentation of the subject of muscular dystrophy, but the hopelessness of benefit to these patients makes it very discouraging. There has nothing been said that we can place our fingers on directly as to the cause of these muscular dystrophies. The familial tendency in these cases is always of great interest. It is one of the several types of familial disease and is most likely due to some developmental cause. Whether it is of endocrine origin we do not know. It looks like there might be something of this nature in the case mentioned by Dr. Moren, that is a high sugar tolerance, and possibly in such cases there is a pituitary disturbance. While the tendency has been to administer pituitary, pineal and suprarenal extracts in these cases, I think, as has been suggested, that pluriglandular therapy is always indicated.

I agree with Dr. Pope that overstimulation of muscles already weakened, by the electric current, is contraindicated. Electricity may be of advantage if used in the proper way. Massage makes the patient more comfortable, and occupational therapy helps to pass the time for the patient. I doubt if any regeneration of muscle can be accomplished in these cases by any known method of management.

R. Alexander Bate: I believe that in time almost all medical literature is going to be rewritten in favor of the endocrine situation. To say that these muscular dystrophies represent a pluriglandular syndrome expresses the latest information on the subject. There is little difficulty in following this idea to a logical conclusion. First of all every medical man is familiar with the fact that atrophy, or a weakened muscular condition, is due to suprarenal deficiency. Therefore, we may say that the first condition developing here is weakening of the muscles associated with suprarenal deficiency. The next factor which seems to be always present in these cases is deficiency in the quantity of blood sugar; no matter what groups of muscles may be affected, nor what the type of the dystrophy, here always seems to be a deficiency in the quantity of blood sugar, so we seem to have here a glucogenetic disturbance.

Insofar as present literature is concerned, no mention is made of the administration of hepatic hormones, but they are certainly indicated by the conditions present. There is lack of blood sugar in these cases, as shown by the inadequate muscular nutrition; and good results have been obtained by giving the patient large amounts of sugar, thus increasing his blood sugar, and to some degree at least limiting the atrophic changes. Everything points to the fact that

there is a deficiency of hormones from the liver and suprarenal, thus producing marked disturbance in the glucogenetic function. We know that glycogen remains stored in the liver until liberated by hormones from the suprarenal. In these cases, then, there are two types of deficiency, i. e., suprarenal and hepatic inactivity, resulting in muscular atrophy and a deficient quantity of blood sugar. These two symptoms are distinctly benefitted by the administration of suprarenal extract. Many cases have been reported where improvement resulted from the use of whole suprarenal substance.

The hypertrophic change which takes place in these cases is merely an accumulation of fat, the muscle tissue being destroyed, and this fat accumulation gives the appearance of a tremendous muscle. We know that the anterior portion of the pituitary body has the peculiar function of metabolizing fat. For instance, it was first observed that the anterior pituitary body was active during pregnancy. This hyperfunctioning power is also noted in hibernating bears where a tremendous amount of fat has been accumulated. In both instances the excessive amount of fat metabolism requires an activity of the anterior portion of the pituitary body. We also have positive changes shown in the bones characteristic of anterior pituitary control. Disturbances of the suprarenal, liver and anterior pituitary are all associated with cases of muscular dystrophy.

Doubtless all of us have observed the beautiful, small waists of young women with enlarged thyroids. Some of the most marked types of atrophic changes have been noted in individuals with enlarged thyroid glands; that seems to be the only case in which we have an excess or "hyper" glandular function. As to the thyroid and suprarenal, we know that one controls the other, the function of one seems to activate and the other to check; or in different words, one furnishes a chaloue, the other a hormone. Thus excessive thyroid activity is relatively the same as suprarenal deficiency, so that where we have excessive thyroid secretion we have a relative deficiency in suprarenal secretion and regardless of whether there is deficiency of the suprarenal or overactivity of the thyroid the same effect may be manifested in the clinical syndrome.

When one takes into consideration these various connecting conditions, and the lapping and overlapping of symptoms, as mentioned by Dr. Pope, the different groups of cases may be better understood. In one group, for instance, the changes may develop to a certain stage in the fetus in one group of muscles; changes in other groups of muscles may occur during the growing process of the child after birth, the ductless glands having control of all the secretions.

NEWS ITEMS

Preventive Medicine At The University of Louisville

Various phases of public health, hygiene and preventive medicine are to be presented at the School of Medicine of the University of Louisville this fall and winter by lecturers from medical faculty, professors in the College of Arts and Sciences and members of the Staff of the Kentucky State Board of Health according to an announcement made at the Dean's office of the Medical School.

"The lecturers will be primarily for members of the Senior class, but a cordial invitation is extended to all members of the medical profession of Louisville and Jefferson County, as well as to nurses, sanitary engineers and others interested," said Dr. Stuart Graves, Dean of the School of Medicine in making the announcement. "Greater emphasis is being laid on the prevention of disease than ever before. Only recently have such courses been included in the curriculum of most medical schools. In making this course available to all interested, we are following out the University policy of serving the public good to the best of our ability. The lecturers have been scheduled for 12 (Noon) every Wednesday, in the lecture room of the first floor of the School building at First and Chestnut Streets. No fees will be charged."

The program for the course of thirty lecturers follows:

1. Sept. 30 "Habit Formation." M. A. Caldwell, A. M., Ph. D., Professor of Philosophy and Psychology,

University of Louisville.

2. Oct. 7 "Vital Statistics."—Warwick M. Anderson, S. M., Dean, College of Arts and Sciences.

University of Louisville.

3. Oct. 14 "Sociology and Public Health."—Norman J. Ware, Ph. D., Professor of Sociology, University of Louisville.

4. Oct. 21. "Hereditry"—Austin R. Middleton, Ph. D., Professor of Biology,

University of Louisville.

5. Oct. 28 "Public Health Administration"—Arthur T. McCormack, M. D., Secretary Kentucky State Board of Health.

6. Nov. 4, "Sanitation"—Clark Dugan, C. E., State Sanitary Engineer, Kentucky State Board of Health.

7. Nov 18, "Relation of Mother and Child"—Annie Veech, M. D., Director Board of Maternal and Child Health, Kentucky State Board of Health.

S. Nov. 25, "Food and Drug Laws"—Mrs. Sarah Vance Dugan, S. B. Director of Bureau of Foods and Drugs, Kentucky State Board of Health.

9. Dec. 2, "Venereal Diseases Control"—Jethra Hancock, M. D., Director Bureau for Control of Venereal Diseases.

10, Dec. 9, "Value of Vital Statistics to the Doctor"—J. F. Blackerby, Ph. D., Statistician, Kentucky State Board of Health.

11. Dec. 16, "Relation of the Public Health Nurse to the Doctor"—Miss Margaret East, R. N., P. H. N., Director Bureau of P. H. Nursing Kentucky State Board of Health.

12. Jan. 6, "Periodical Health Examinations", Philip E. Blackerby, M. D., Ass't. Sec'y., Kentucky State Board of Health.

13. Jan. 13, "Co-operation with the Health Officer"—Edw. P. Whistler, M. D., Jefferson County Health Officer.

14. Jan. 27, "Military Hygiene"—Commanding Officer, Fifth Corps Area.

15. Feb. 3, "Personal Hygiene"—Guy Aud, M. D., Clinical Instructor in Surgery, University of Louisville.

16. Feb. 10 "Oral Hygiene"—Raymond Grant, D. D. S.

17. Feb. 17, "Mental Hygiene"—Frank J. O'Brien, Ph. L., Director Louisville Psychological Clinic.

18. Feb. 24 "Conservation of Hearing"—S. G. Dabney, M. D., Clinical Professor of Oto-Rhino-Laryngology, University of Louisville.

19. March 3, "Conservation of Sight"—A. O. Pfingst, M. D., Clinical Professor of Ophthalmology, University of Louisville.

20. Mar. 10 "Prevention of Constipation"—Charles G. Lucas, M. D., Clinical Professor of Gastro-Enterology, University of Louisville.

21. Mar. 17 "Prevention of Goitre"—John Walker Moore, M. D., Professor of Medicine, University of Louisville.

22. Mar. 24, "Prevention of Tuberculosis"—Oscar Miller, M. D., Director Jefferson County Tuberculosis Hospital.

23. Mar. 31 "Prevention of Heart Disease"—Emmett F. Horine, M. D., Clinical Instructor in Medicine, University of Louisville.

24 April 7, "Prevention of Diabetes"—William A. Jenkins, M. D., Clinical Professor of Medicine, University of Louisville.

25. April 14, "Prevention of Drug Addiction"—William E. Gardner, M. D., Assistant Clinical Professor of Psychiatry, University of Louisville.

26. April 21, "Varieties of Heat Stroke and Their Prevention"—Henry B. Barbour, M. D. Professor of Physiology and Pharmacology, University of Louisville.

27. April 28, "Focal Infection"—Morris Flexner, M. D., Clinical Instructor in Medicine, University of Louisville.

28. May 5, "Cancer Control"—Irvin Abell, M. D., Clinical Professor of Surgery, University of Louisville.

29. May 12, "Work and Rest"—M. F. Hamilton, Ph. D., Assistant Professor of Physiology, University of Louisville.

30. May 19, "Medicine and Dentistry"—E. C. Hume, D. D. S., Professor of Oral Surgery, University of Louisville, School of Dentistry.

31. May 26, "Keeping Fit"—Tom King, S. B. Director of Physical Education, University of Louisville.

BOOK REVIEWS

THE DIAGNOSIS OF CHILDREN'S DISEASES, with special attention to the diseases of infancy, by Professor Dr. E. Feer, director of the University Children's Clinic, Zurich, Switzerland, translated by Carl Ahrendt Scherer, M. D., F. A. C. P. J. B. Lippincott Company, Publishers, Philadelphia, London, Montreal. Price \$7.00.

The fact that this book has gone into its third edition in three years and has been translated into the French, Spanish and Italian, prompts us to offer it in English. Professor Feer is a recognized authority on pediatrics and, as such, needs no introduction. His wide clinical and teaching experience in the University Children's Clinic, at Heidelberg and Zurich, has eminently fitted him to undertake the task. His method of presentation is unique; his powers of observation, extraordinary; and the material gathered, extremely complete. The large number of excellent illustrations are taken from his own cases.

The work confines itself entirely to the diagnosis of disease in the child, with especial attention to the ills of the newly born and of infants. Treatment is not considered except when it is essential for diagnosis. The material presented is treated in a brief and concise manner. It gives innumerable fine points of diagnosis that are not even mentioned in general text-books. All the most recent diagnostic aids are elaborated. The translator has attempted to transmit fully the view of the author and has made no additions nor comments.

FEEDING, DIET AND THE GENERAL CARE OF CHILDREN: A book for Mothers and Nurses, New Revised Edition, by Albert J. Bell, A. B., M. D. F. A. Davis Company, Philadelphia,

Publisher Price \$2.00. The subject matter is arranged upon a new and convenient plan. The latest trustworthy information being given clear understandable language, including the significance of the Vitamines in relation to the feeding of Babies and Young Children.

The Important subject of Food with reference to the Teeth has been especially emphasized. "Every effort has been made to impress upon Mother and Nurse the principles for the prevention of Disease."

THE SURGICAL CLINICS OF NORTH AMERICA: (Issued serially, one number every other month.) Volume V, Number 1 (New York Number—February 1925.) 294 pages with 142

THE SURGICAL CLINICS OF NORTH America (December 1925.) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The SURGICAL CLINICS OF NORTH AMERICA (Issued serially. One number every month.) Volume V, Number II (New York Number—April 1925.) 337 pages with 105 illustrations. Per clinic year (February 1925 to December 1925.) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D. Professor of Bacteriology in the University of Chicago and in Rush Medical College. Eighth Edition, thoroughly revised. Octavo of 752 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1924, Cloth \$5.00 net.

Dr. Jordan has given his work, for this new (8th) edition, a most complete revision. He has added a great deal of new material on the bacteriophage phenomenon, tularemia, botulism, scarlet fever, and other subjects in which recent progress has been made. The chapter on Anaerobes has been extensively revised.

Dr. Jordan's book is very complete. He gives methods of studying bacteria, the structure and mode of development, the effect of physical and chemical agents on bacteria, the effects produced by bacterial growth, immunity, and then discusses in detail the various bacteria, both pathogenic and non-pathogenic.

A chapter is devoted to the filtrable viruses. There are also chapters on the bacteria of the air, soil and water; bacteria in the arts and industries; the bacteriology of milk products; bacteria and the nitrogen cycle, and the bacterial diseases of plants.

CLINICAL THERAPEUTICS, BY ALFRED MARTINET, M. D., Paris, France, with the collaboration of Drs. Desfosses, G. Laurens, Leon Meunier, Luther, Martingay, Mougeot, Saint-Cene, Segard, and Teron. Authorized English translation from the second revised and enlarged edition, by Louis T. DeM. Sajous, B. S., M. D. Associate Professor of Experimental Pharmacology, School of Medicine, Temple University; Instructor in Endocrinology, Graduate Medical School, University of Pennsylvania, Philadelphia with 332 text engravings., complete in two royal octavo volumes. Volume 1. Therapeutic agents and procedures. F. A. Davis Company, Philadelphia. Price \$16.00 net.

The work is the logical and necessary complement to an earlier work entitled "Clinical Diagnosis," of which four French and two American editions have already appeared. It was conceived in the same spirit of "uragmatic" serviceability, and this objective has been kept in mind even to the extent of preserving a typographical similarity of the two works. Indeed the latter constitute, properly speaking, but a single treatise: A manual of practical medicine based on an essentially novel plan, conforming to the actualities of practice and meeting clinical requirements.

FRACTURES AND DISLOCATIONS: Immediate management, after-care, and convalescent treatment with special reference to the conservation and restoration of function, by Philip D. Wilson, A. B., M. D., F. A. C. S., instructor in orthopaedic surgery, Harvard medical school, and William A. Cochrane, M. B., Ch. B., F. R. C. S. Edin., University Tutor in Clinical surgery, University of Edinburgh, 978 illustrations. J. B. Lippincott Company Publishers, Philadelphia and London. Price \$10.00.

In writing this book the authors have tried to keep in mind the needs of the general practitioner and for this reason the non-operative methods of treatment are stressed. In undertaking the preparation of the present volume the authors have attempted to make available the results of special experience in treatment of these conditions, and to describe the methods whether new or old which have proved of greatest value in dealing with all the more common fractures and dislocations. The volume is amply illustrated.

SELECTED MEDICAL PAPERS: By Alfred Worcester, A. M., M. D. Containing eighteen articles reprinted from the writings of Doctor Alfred Worcester and one article from the writings of Doctor Edward R. Cutler. Illustrated from photographs and with four plates from

drawings by Russell T. Hyde. The Four Seas Co., Publishers 454 Stuart Street, Boston, Mass. Price \$3.00.

This volume contains a complete bibliography and reprints in full eighteen articles from the writings of Dr. Worcester on important subjects including a series on Appendicitis, a series on Obstetrics, and miscellaneous papers, concerning past and present methods in the practice of medicine, the education of nurses, etc.

The professional career of Dr. Alfred Worcester is such as has rarely been bestowed upon any of the children of Aesculapius. He had no sooner left his professors than he took violent issue with them on the cardinal principles of Surgery. He walked with those men who were devoting their lives to the evolution of modern Obstetrics. He organized one of the greatest steps ever taken in the interests of Public Health in Massachusetts, in the establishment of State Sanatoriums for the cure of tuberculosis.

PRACTICAL LECTURES: Delivered under the Auspices of The Medical Society of the County of Kings, Brooklyn, New York, 1923-1924 series. One Hundred and Thirty-two illustrations and three color plates.

Paul B. Hoeber, (Inc.) Publishers, New York Price \$5.50. One of the most interesting subjects discussed in this volume of lectures is Epidemic Encephalitis, by Frederick Telney, M. O. The writer enters into the history, epidemiology, pathological anatomy and etiology in a thorough manner. He gives the recent views of Rosenow regarding the green producing streptococci as a causative agent. The volume is well interested.

THE SURGICAL CLINICS OF NORTH AMERICA: (Issued serially, one number every other month) Volume IV, Number VI (Clinic of Frank H. Lahey, M. D., Boston, Mass. December, 1924, 166 pages with 43 illustrations, and complete index to Volume IV. Per clinic year (February, 1924, to December, 1924.) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

This number of the Surgical Clinics of North America makes available to the medical profession, a record of the work being done at the Lahey clinic, Boston. Of the seventeen clinics by Dr. Frank H. Lahey and his Staff, twelve are devoted to some phase of thyroid disease and its treatment. Symptoms, diagnosis, treatment, management, complications—every step is detailed by a recognized authority. This number, is one of the best in the series.

THE PRACTICE OF PEDIATRICS. By Charles G. Kerley, M. D. Formerly Professor of Diseases of children, New York Polyclinic Medical School and Hospital, and Gaylord W. Graves, M. D., Associate in Diseases of Children in the College of Physicians and Surgeons, New York City. Third Edition, revised and reset. Actavo of 922 pages, 150 illustrations, Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$9.00 net.

The new (3rd.) edition of this work on Pediatrics places it in the very first rank of one-volume works on diseases of children. So extremely heavy was the revision that it was necessary to reset the book from beginning to end. As an indication of the rapid developments in pediatrics may be mentioned the following new additions to this edition; Growth and development, methods of infant feeding, development of gastro-intestinal abnormalities as shown by the X-ray, scurvy, rickets, asthma, pneumonia, influenza, endocrine disorders, nephritis, tetanus, hydrocephalus, epidemic meningitis, encephalitis, lethargia, small pox, measles, diphtheria, scarlet fever, acidosis and alkalosis, diabetes, acrodinia, defective bodily mechanics, foreign bodies, diagnostic methods and special therapeutic procedures. In all of these subjects the revision has been practically heavy, but there is not a page of the book which does not show very pronounced evidence of careful revision.

MANUAL OF OBSTETRICS, by John Cooke Hirst, M. D., Associate in Gynecology and Obstetrics Graduate School of Medicine, University of Pennsylvania; Associate in Obstetrics, School of Medicine, University of Pennsylvania. Second Edition, Entirely Reset. 12mo of 551 pages with 229 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$4.50 net.

This book is written as a companion to the author's Manual of Gynecology. It also presents, as far as possible on the printed page, the methods of teaching the subject he has used with satisfaction for the last twenty years. Throughout the book an effort has been made to present the subject clearly and concisely, and to avoid all unprofitable discussion. The methods of treatment and technic of operations advocated have all been tested in practice and have given satisfactory results.

The scope of the book has been rather sharply limited. A minimum of embroidery has been included. Diseases of the newborn child are included only in so far as they occur during the puerperium. The chapters on lacerations of the birth-canal and consequences of childbirth, while differing somewhat in scope, are necessarily very

similar to the same chapters in the Manual of Gynecology.

DISEASE OF THE HEART. By Dr. Henri Vaquez, professor of the Faculty of Medicine of Paris; Translated and edited by George F. Laidlaw, M. D., Associate Physician to the Fifth Avenue Hospital, New York City; Introduction by William S. Thayer, M. D., Johns Hopkins Hospital, Baltimore, Md. Octavo volume of 743 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$8.50 net.

The American edition is two years newer than the latest French edition because Dr. Vaquez revised and in a great measure rewrote his book in order to make the American edition present today's knowledge of cardiology. To radioscopy of the heart he added his latest findings, made in conjunction with Bordet, and the new table of the diameters of the separate auricles and ventricles. He has rewritten a large part of the chapters on heart failure, treatment, hypertension, and complete arrhythmia. He has rewritten the entire chapter on bradycardia and aided a chapter on coronary thrombosis. The chapters on endocarditis, pericarditis, myocarditis and congenital lesions he has enlarged, summarizing all the recent work on gallop rhythm and the radioscopic studies of the effects of exertion. The French has always excelled in their power of clinical description and one of the most delightful features of Dr. Vaquez' treatise is the vividness of his clinical pictures.

INTERNATIONAL CLINICS: A Quarterly of Illustrated Clinical Lectures and especially prepared original articles on treatment, medicine, surgery, Neurology, Paediatrics, obstetrics, gynecology, orthopaedics, pathology, dermatology, ophthalmology, otology, rhinology, laryngology, hygiene, and other topics of interest to students and practitioners by leading members of the Medical Profession throughout the world edited by Henry W. Cattell, A. M., M. D., Philadelphia, U. S. A., with the collaboration of Chas. H. Mayo, M. D., Rochester. Volume II, III and IV, Thirty-Third Series. Philadelphia and London. J. B. Lippincott Company, Publishers.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume V. Number III (Mayo Clinics Number—June, 1925.) 260 pages with 115 illustrations. Per clinic year (February 1925 to December 1925.) Paper \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, Publishers.

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Whereas, it has pleased God in his infinite wisdom to remove from our midst our confrere and friend Marion E. Pirkey.

Be it resolved that, we, members of the Louisville Eye and Ear Society greatly deplore his loss.

We feel that in his death we have lost a faithful friend and the profession an honored member.

That we extend to the bereaved family our sincerest sympathy and trust that they may be given strength to bear their affliction.

Be it further resolved, that a copy of these resolutions be sent to the family; that a page of our minutes be set aside for that purpose and that a copy be sent to the Kentucky Medical Journal for publication in its pages.

H. N. RITTER
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Carlisle

The Carlisle County Medical Society met on August 25, 1925 at the Masonic Hall at Bardwell, at 1 P. M. Our President, Dr. D. S. Robertson being absent, Dr. R. T. Hoeker, vice-president, presided.

A resolution was adopted that the society will not meet at any place in the county where the doctors of said place are not harmonious.

The following program was rendered:

1. Pericarditis—G. W. Payne.
2. Foreign Bodies in the respiratory tract—W. L. Mosby.
3. Hysteria—H. T. Crouch.
4. Purpura Ani—H. A. Gilliam.

All the papers were very fine but on account of lack of time they were not discussed.

It was moved and carried that the Masonic Hall be used as a meeting place for the Semi-annual Meeting of the S. W. Kentucky Medical Association, which is to be held in Bardwell in October. It was voted that the Bardwell Doctors act as the committee on arrangements for the above named meeting, the other doctors of the county assisting in any way they can.

Dr. T. J. Marshall of Bardwell was elected delegate to the State Meeting, with Dr. W. L. Mosby, alternate.

There being no further business the society adjourned.

J. F. DUNN, Secretary.



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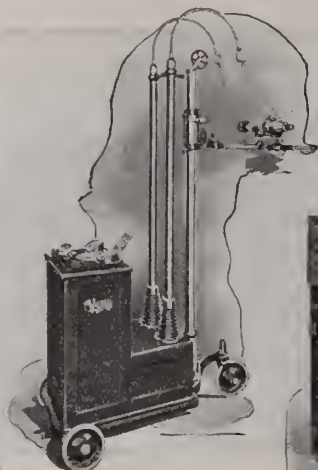


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tions an open mind
eagerly expectant of
new discoveries and
ready to remold con-
victions in the light
of added knowledge
and dispelled igno-
rances and misappre-
hensions, is the
noblest and the most
difficult to achieve."

—James Harvey
Robinson in
"The Humanizing
of Knowledge"

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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EDITORIAL

GOSSETT'S METHOD OF RESUSCITATION OF THE NEW-BORN

Dr. L. T. Minish of Frankfort, Ky., in his paper "The Care and Delivery of the Pregnant Woman in Her Home," read before the Kentucky State Medical Association, Louisville, October 8, 1925, reports a new method of resuscitation of the new-born instituted by Dr. Walker Gossett of Louisville; "The ice water spray method." The baby is first placed in a pan of hot water, sufficient to redden the skin, then taken out of the hot water and placed on it's side and immediately the ice water is sprayed up and down it's spine; tip of spine to base of skull. This takes about five seconds, then immediately the child is submerged again in the hot water bath for about fifteen or twenty seconds, then taken from the bath and again the ice water spray is used. In one case reported by Gossett, after all the old methods had been tried for twenty-five minutes, even oxygen used, this spray was used five times before the baby cried out and respiration established. A two ounce asepto syringe B-D is used. Ice is placed in water.

Dr. H. G. Barbour, Professor of Physiology and Pharmacology, University of Louisville, Medical Department, explains Gossett's method as follows: "How a spray of ice water applied up and down the entire length of the spine of a new-born infant may arouse a respiratory mechanism which has hitherto failed to function. First, I may say that I believe this can be the life saving factor in some cases. The procedure described by Gossett serves to stimulate, indirectly, the respiratory center in the medulla: Certainly (1) by acting as a mass afferent nerve stimulation perhaps approaching the maximum possible and probably; (2) by chemical stimulation, acting as an accessory factor. This latter would be due to the fact that the circulation is delayed in cooled regions, thus causing accumulation of asphyxial products, especially CO_2 as well as diminished alkalinity and loss of water from the blood. Such a condition of the blood rather suddenly produced would act as a chemical stimulus.

All of the above effects would be augmented by alternating a hot bath with the ice water spray. This is because the effectiveness of the stimulation is related to the *extent of change* of temperature rather than to the absolute temperature."

A DESERVED HONOR TO DR. CHAMBERS

To pay the honor due one of its members who has rendered a long and unselfish service to humanity, while he is living, is not a frequent enough occurrence in the history of the medical profession. It is indeed a pleasure to record the meeting of the Campbell-Kenton Medical County Medical Society held on July 30th, 1925 at Independence, at his home, and in honor of Dr. John M. Chambers, a veteran of the professional firing line for over sixty years. This was one of the most unique medical society meetings ever held in the state, and was attended by a large number of the most representative physicians in Northern Kentucky. Dr. Chambers ninety-three years of age was present at both the banquet and the regular meeting that followed and responded to the addresses and felicitations in his honor with much feeling, and there was altogether such an air of brotherly love and professional pride exhibited as to inspire each physician present, to re-dedicate his life to a renewal of effort in behalf of suffering humanity, that the example of this great old doctor might be emulated.

There were present at the meeting five physicians (three of whom were just approaching sixty years of age) whose advent into this world had been presided over by Dr. Chambers, and it was further brought out that there were more than thirty-five practicing physicians scattered throughout the United States, who had been similarly served a birth by this beloved physician. It is certainly a striking testimonial to his kindly influence and professional example that so many of his protegees should take from his hand the torch to light the way of the suffering and the distressed.

In addition to the three addresses published in this issue, brief and impressive testimonials to Dr. Chambers and his notable

career were made by the following:

Dr. J. A. Averdick, Toastmaster, Covington, Ky.,

Dr. George W. Ragan, Cold Springs, Ky.,

Dr. J. G. Furnish, Covington, Ky.,

Dr. H. F. Wilson, Covington, Ky.,

Dr. C. W. McCollum, Erlanger, Ky.,

Dr. P. E. Blackerby, Louisville, Ky.

VIOLATION OF THE PRACTICE ACTS.

The State Board of Health succeeded recently in securing the conviction of one, Nicholas J. Goergen, an unlicensed and non-graduate practitioner in Newport; the Police Court of that city assessing a fine of \$350.00 and a jail sentence of sixty days. This was one of the most flagrant violations of the Medical Practice Act that has ever been called to the attention of the Board. Goergen held himself out as an X-ray specialist, succeeded in producing X-ray burns of a very serious nature, even to the extent of producing what was described by a prominent Cincinnati surgeon as a precancerous burn. Besides producing such serious burns and otherwise menacing the life and health of his victims, the Board secured evidence of his having sterilized women in his practice.

The Board has been very active during the past two years in securing the conviction of illegal practitioners. Fourteen unlicensed chiropractors have been convicted, three other irregular practitioners and a number of itinerant patent medicine vendors; and it is gratifying to the Board to find that, not only public sentiment, but the courts pretty generally are co-operating in bringing such violators to law.

Physicians generally, especially public health officers, are urged to secure definite evidence of illegal practice for which the offender has accepted compensation and to bring the case and evidence to the attention of the Commonwealth or County Attorney. The State Board of Health should be notified of the effort, and will always help when necessary.

Albuminuria of Runners.—Liabbe, Voille and Nepveux noted in the young and healthy runners, immediately after the race, form traces to 0.05 per cent. of albumin in the urine. The presence of albumin was not in connection with the Ph of the urine, in any respect. They assume that the prolonged exertion, causing exaggerated oxidation in the organism and excessive cellular wastes, may induce a transient change in the kidneys, or changes may occur in the serum albumin, favoring its passage through the kidneys.

ORIGINAL ARTICLES

TRIBUTE TO DR. CHAMBERS

By J. A. DAVIS, Covington.

To respect, to admire and to honor Dr. Chambers we meet today. The Campbell-Kenton Medical Society today pays tribute to the living in giving to Dr. John M. Chambers a little bouquet of friendship, fellowship, good will and best wishes. In doing this, we honor a sturdy, staunch and stalwart member of our profession in other ways than words and a breathing courtesy from us is scarcely needed.

Dr. Chambers has endeared himself to the public and to the medical profession through many years of devoted service, and we delight to honor him when honor to him can be enjoyed by him. His toil worn hands are clean, his throbbing heart is tender, pure and warm, his doctrine and his life coincident, exhibit lucid proof that he is honest in his sacred cause. His life and his example we might emulate, his life has been extended to the time when none have equaled him,—God has been good to him, and so we wish to be.

In his many years of service, he has seen the infant torn from its mother's breast and he checked the bleeding of a mother's broken heart. He has seen the boy and girl cut off before the bloom of life lit on their cheek, he wondered why while comforting the sorrowing ones; he has seen the young man and maid blossoming into the flower of manhood and womanhood die, and he helped to carry the burden of their loss; he has seen men and women stricken down in the prime of manhood and womanhood when success was just within their grasp, and he with friends had to pass through the agony of suspense and the shock of disaster because of their death; and when the aged ones crept on apace and trembled with tottering gait and feeble step, he gently cared for him.

Dr. Chambers has worked his way closer into the heart of more men and women than any two or three of us. He has nestled in the innermost recesses of the hearts of more people than any man of divinity, and in doing so has honored us more than we can ever honor him. It is for us to take renewed devotion to our calling because of his example, and while we meet to honor him, he has signally honored us above our poor power to impart the same to him.

Dr. Chambers, with bowed heads and full hearts, we acknowledge your supremacy in our calling, and ask that God may continue

his goodness toward you; and as we close
may we say:

"Farewell,"

Farwell? It can't be so. For one short hour
Our ships have sailed together. Now the power
Of drifting winds may try to pluck the flower
Of friendship as we part. To meet no more?
We hope and trust the fates will be more kind.

Farewell? It can't be so. For one short hour
Yet as you travel to and fro, you go
To make some other friend, and never know
The good you do, how much you lighten woe,
And leave such kind remembrances behind.

So as you sail on life's e're changing sea,
Sometimes in calm, or mist, or storm may be.
And other ships come near, this is our plea,
Do not forget this friend you've made, and
we

Will wish you well and keep you still in
mind.

Say not farewell. When friendship ties are
bound

With sorrows bonds they never break. 'Tis
found

Each tie grows stronger as the years roll
round.

Distance may separate but never sound
Such friendships depths. It lives through end-
less time.

We will not say farewell, but fare ye well.
And if the gift were ours and we could tell
What future holds for you, we would dispel
All gloom and bid fair sunshine with you
dwell

Until we meet in Heavens purer clime.

—James A. Davis, M. D.

Reduction of Incarcerated Hernia.—Krecke considers the operation as the normal treatment of incarcerated hernia. Reposition is allowed in large hernias with a broad ring if the incarceration has not lasted for more than an hour. Otherwise, it is contraindicated, especially with signs of inflammation, including great local pains. He makes an injectioc of - or 2 cc, of morphine from five to ten minutes before attempting the reduction. The patient's pelvis should be elevated, the highs flexed. Catheterization is necessary in retention of urine. Local anesthesia with procain decreases the muscle tonus so that spontaneous reposition may occur. A warm bath is also quite helpful for relaxation. Local application of ether may decrease the volume of the incarcerated intestine. No great force and no finger tips should be used. Gurgling sounds announce the beginning of success.

TOAST TO DR. CHAMBERS

By J. O. JENKINS, Newport.

Mr. Toastmaster, our Honored Guest, members of the Campbell-Kenton Medical Society, ladies and gentlemen! I feel that I have been highly honored today, in that I am permitted to say a few words in honor of our fellow-citizen and practitioner, Doctor John M. Chambers of Independence, Kentucky. In his long residence among us of almost a century, we have come to know him well and to appreciate his labors, his words of wisdom, his sympathies for humanity and his nobleness of character,—an ideal Kentucky gentleman and a faithful and true Kentucky doctor.

"O, he sits high in all the people's hearts
And that which should appear offense in us,
His countenance, like richest alchemy,
Will change to virtue and to worthiness."

Shakespeare—Julius Caesar.

What a wonderful life our friend has spent thus far, in a most wonderful age, and who would be better able to interpret the rapid and changing modes of the period? He has seen the struggling light of knowledge burst into full bloom until it illuminates the world: he has seen the pains and agonies of humanity ameliorated or removed; he has seen the hazardous, forlorn life of the pioneers of the State replaced by one of safety, culture and luxury. He has seen his chosen profession emerge from the confines of doubt and empiricism to the pinnacle of positive knowledge and positive method. Have these not been golden years to him?

But little less than five score years, when history allots only three score and ten as the sum total number for man. We pause to inquire who shall limit the age of man, who follow nature's physiological requirements? If one shall have arrived at a greater number of years than his felows, who shall deprive him of the honor and glory of the vast experience or rewards he has achieved thereby.

"What is time? The shadow on the dial.—the striking of the clock,—the running of the sand,—day and night,—summer and winter,—months, years, centuries,—these are but arbitrary and outward signs, the measure of time. Not Time itself. Time is the life of the soul."—Longfellow.

And thus be it with our fellow citizens, our guest of honor today, our fellow worker in the field of Medical Art and humanity. We appreciate the long life he has passed within the ranks of advancing thought and progress, and accord him the laurel crown of

victory. As he trod the pathway of duty, he plucked ever and anon a fragrant blossom from the Garden of Experience to place among the high ideals for which he strove. Thorns there were and frailties of the flesh and weariness of feet too prone to lag, but kindness of heart and sympathy of soul ever urged him onward until success was achieved and the goal was reached.

Now Bulwer Lytton says, "Every street has two sides,—the shady side and the sunny side. When two men shake hands and part, mark which of the two takes the sunny side, he will be the younger man." So does our friend. We are sure to find him on the sunny side of the street, and when some one of the "boys" happens to be over in the big town across the Ohio River to buy a bivalve speculum for a case of romantic, short skirted anatomy, or to fit a horse collar on his Ford, he may be surprised by a warning slap on the back and a cheery, "Hello Bill, What are you doing on Fifth Street at this hour?" Caught in the act while in the midst of the entrancing fashion show by "Doc" Chambers.

O, yes, speaking of age,—well, we have no doubt he can yet follow the coon dog, lead the fox chase or be the "goat" in a snipe hunt. It's just the way you take them and make them. These kind of men last well, and the youth of four plus years is iron and steel and brooks no master. As a conquering hero, I greet him with boisterous tongue, and may his be long life, prosperous and happy. Hail, all Hail Doctor John M. Chambers!

A FITTING EULOGY TO DR. JOHN M. CHAMBERS.

By W. E. SENOUR, Bellevue.

Most worthy Toastmaster and fellow members of the Campbell-Kenton Medical Society! No act of my whole life has given me more profound pleasure or greater satisfaction than the duty I am about to perform on this occasion. I am delighted, honored and inspired by your magnetic presence. My cup of joy and happiness runneth over today as I abandon the scalp and needle for a little while and wander back to the favorite scenes of my childhood, "where fond recollections present them to view. The old oaken bucket, the deep tangled wildwood, and everything that my loved infancy knew,"—to wander back to my old home town, where many happy hours were whiled away. Nothing in all the world warms the heart like the magic words of "Home Sweet Home." Nothing fills and thrills the heart of the true Kentucky doctor like the enchanting strains of

music "My Old Kentucky Home."

While partaking of the many luxuries so abundantly furnished by our generous host, and enjoying the fellowship of my brother physicians, the past rises before me like a dream. As I look back through the midst of fifty-nine years, methinks I behold seated by the bedside in my old home our most honored guest, anxiously awaiting for that shrill cry that announced my advent into this great struggle of the survival of the fittest. I look again, when I behold him applying to my gluteal region that short quick slap that stimulates the first respiratory act. As I continue to gaze upon that scene, I see him as he tenderly places me in the arms of my mother, when she presses upon my cheek the holy kiss of welcome. During the first years of my life, he devoted much time and attention to me, employing the great skill for which he is noted to sustain the vital spark.

Speech cannot express my gratitude, and no words that I can command on this occasion fittingly show any admiration for Dr. Chambers. It was largely through his example and influence that I was prompted to enter the medical profession,—to my mind one of the greatest and most ennobling in the gift of man. A profession, if you please that is calculated to develop the best qualities of the heart, the hands and the brain.

Our most honored host is a man of high ideals and as reliable as the law of gravitation. No man ever held the standard of responsibility higher than he. His integrity rises above like some great mountain peak, and it stands as firm as the earth beneath and as pure as the stars above. His charities are as wide as want, wherever there is human suffering or human misfortune the sympathy of Dr. Chambers bends above like the firmament bends above the earth. If every one for whom he has done some kind and loving service during his long years of practice were to cast a blossom at his feet today, he would be surrounded by a wilderness of flowers and the air would be laden with the choicest perfumes. If all of his charities could be changed to melodies, a symphony would fill the skies.

As I gaze into the sparkling eyes of this charmed circle and recall the kind acts and noble deeds of our esteemed brother, life lengthens and joy deepens. Our interest in the future advances of medicine and surgery grows stronger as the years go by, and final hopes for greater achievements during the years yet unborn spring eternal in the human breast. He stands today at the summit of his power, a peer of the greatest,—a dis-

tinguished physician, tried and trusted.

Long after we have passed into that dreamless sleep that kisses down our eyelids, still the kind acts and comforting words that he has spoken will sound like trumpets to the dying. The beneficent influences of such a life as that of Dr. Chambers is never lost. A noble life enriches all the world. Today his words and acts are ours, and all he has done is living still.

THE USE AND ABUSE OF ATROPINE IN THE EYES.*

By W. A. WELDON, Glasgow.

In preparing this paper all efforts were made to present it in a way that would be beneficial to those who are doing general practice; therefore, many things that might be of interest to the eye doctor have been omitted.

Atropine is the most useful and yet the most abused drug used in the treatment of eye diseases. Useful because when indicated we have no drug that will quite take its place. No cycloplegic quite so powerful in its action. Abused, because it is used indiscriminately by so many doctors with no thought of the final results, whether for good or bad.

I think I am right when I say that with most men, doing general practice, atropine is the favorite remedy in all conditions of the eyes. While I was in general practice I kept a bottle of one per cent solution convenient and observing any eye condition, whether of the eyeball or lids, regardless of diagnosis or therapeutic indications, I instilled atropine and will confess that occasionally I put a drop or so in the sound eye on general principles.

Since I became more interested in eyes I have often asked myself the question, What reason did I have for doing this? I have never given a satisfactory answer. If I didn't care much about eyes in those days I certainly knew that I ought not to treat before I diagnosed, should never use drugs before I knew their therapeutic effect and then only when indicated.

I sometimes think that we are enthusiastic about the use of atropine because we get such visible results, apparent not only to the doctor but to the patient as well.

We like to impress the one under treatment that we are using a very powerful drug. A drug that will change his whole physiognomy in a short time. We are gratified to see the pupils wide open. We like to hear the patient relate how well he can see in the distance but unable to tell the correct

time. I am sure that for the same reason I have used many purgatives when not indicated. I always made it a rule to have the patient take one or two pills at bedtime. I got a certain amount of pleasure on the following morning to hear the patient relate what a wonderful effect the medicine had. How he had gotten up to the stool four or five times during the night, how confident he was that his liver, for one time in life was thoroughly cleansed. For the same reason I often used pills containing methylene blue for diseases of the genito-urinary tract. It was a pleasure for me to hear the patient describe what blue water he had passed. Occasionally I would go so far as to have him collect a specimen in order that I might give it close personal inspection. It was pleasing to the eye to behold what a wonderful change my medicine had wrought. In this I was getting visible results, not of the therapeutic effect but merely that methylene blue had been excreted by the kidneys. I doubt seriously whether any good had been accomplished.

So, looking back I am of the opinion that for the same reason that I used purgatives, methylene blue and etc., I used atropine.

I will repeat that atropine is a very useful drug; so are purgatives, but atropine, as all other drugs should be used only after we are aware of its therapeutic effect and then only when that particular therapeutic effect is desired.

Atropine paralyzes the oculo-motor nerve terminals in the sphincter of the iris and in the ciliary muscle; and hence produces dilatation and immobility of the pupil with loss of accommodation. The effect of atropine makes its appearance in from ten to fifteen minutes after instillation and soon reaches its maximum. On the third day it begins to decline but does not disappear completely until after the lapse of a week or more. There is no known drug that will counteract its effect markedly; morphine to some extent its systematic effect, while eserine locally in the eyes slightly.

Then aware of its therapeutic effect it is necessary to know what diseases of the eyes do better under this effect before we resort to the use of atropine. Of course we must know its therapeutic limitations. If you will note I used the word resort, I would not want to be called an alarmist, and leave the impression that only eye doctors should be entrusted with atropine, but I believe I might have better said, last resort. While once upon a time I used it freely but now I use almost as a last resort, especially in people past forty-five.

*Read before the Third District Councilor Meeting at Cave City.

The question of disease can be answered with one word, just one disease, Iritis. Then again before resorting to atropine we must be reasonably sure that the particular case in question is an iritis.

This is not always an easy matter but if you will examine the eye carefully, remembering the etiology, subjective and objective findings, you can usually make a diagnosis. We know that most iritis is due to some systemic disturbance such as lues, gonorrhoea, tuberculosis or due to foci of infection somewhere in the body, which we call metastatic and occasionally due to metaboloic derangements. Then if a man presents himself at our office showing the following symptoms and objective signs: Circum corneal or ciliary injection, photophobia, lachrymation and pain. The pain not only in the eye itself but radiating to parts in the vicinity, especially supra-orbital region: disturbance of vision, due to turbidity of the aqueous; Small contracted pupils that responds very little if at all, to one drop of homatropine. With a picture like this and, if especially, he is suffering from one of the etiological factors, lues, Gonorrhoea, T. B., or foci of infection somewhere in the body: it is the best guess that the patient has an inflamed iris and atropine is indicated in order to put the iris and ciliary body at rest. But even here it is not best to prescribe atropine for the patient to instill in his eyes at home, say once a day to keep the pupils dilated. Under no circumstances should this be done in a patient past forty-five. Because we may have a typical iritis today and an iritis with increased tension tomorrow due to blocking of iris angle. In this case, eserine which contracts the pupil should be used. An inflamed iris will get well usually with a fair degree of vision, if you remove the cause but an eye with an increased tension over a long period of time will be hopelessly lost.

I forgot to mention that atropine was a necessary adjunct to proper refraction in children under sixteen.

While in iritis atropine acts as a splint to the inflamed iris and is dependable, in most other eye conditions it aggravates the disease by causing increased sensitiveness to light; and in glaucoma or an eye predisposed to glaucoma it is dangerous.

Oftimes one drop of a one per cent solution instilled into a glaucomatous eye will bring on an attack of glaucoma that ends not only in blindness, but will necessitate removal of the eyeball for the relief of pain. So if we continue in the use of atropine we must know enough about eyes to recognize certain

conditions in which under no circumstances should it be used.

I review with you a man that presented himself with symptoms so pronounced that we diagnosed the case iritis and used atropine. Now, another man comes, we will say fifty years old, complaining of neuralgia in his eye. He has had two attacks, usually worse in the morning, better in the evening. His wife and neighbors have removed a few wild hairs. Eagle eye salve gives him relief after a few days. He has discovered that his glasses don't suit as well as they did. During the attacks he sees rings around the light. On looking at his eye you find a dusky red appearance around the cornea. His pupils somewhat dilated and oval. A shallow anterior chamber: And an insensitive cornea, determined by touching the cornea with a thread of cotton. In any patient presenting any one of these symptoms, it would be well to slow up on the use of atropine. Remember that it is common to have a glaucoma with absolutely no symptoms. Of course we always have an increased tension; tension, however taken without a tonometer means very little to most of us.

Those of you, who use the ophthalmoscope will notice an increased cupping of the disc. This means glaucoma usually, therefore keep atropin away from the eyes.

I am sure that we are all aware of the harm that we may do in a indefinite abdominal condition by the use of purgatives. The same can be done with eyes by the use of atropine. I don't want to appear personal and I am sure that no one will take offense. It is not an uncommon thing for a doctor to tell me about treating some elderly person, with a red and inflamed eye and how he was keeping the pupils well dilated while trying to make the diagnosis. If I should tell the very same doctor that I had a patient with acute pain in his abdomen and was keeping him well purged while making the diagnosis, that doctor would throw up his hands in Holy Horror.

In conclusion, I would say never use atropine before a definite diagnosis is made and then only when indicated. Be careful in the use of a one per cent solution in children for fear of systemic poisoning. Never allow a patient to leave your office for at least twenty minutes after you have instilled it in his eyes. Never use it in a patient past forty-five with any condition, unless you have ruled out increased tension. This holds good even in a positive diagnosis of iritis.

At all times beware of the use of atro-

pine, lest at some future date you will have privilege of dropping dimes into a tin cup, held by a thin, palid outstretched arm of an unfortunate individual, crouched down by the side of some lonely building with a placard on his chest, "Please Help the Blind."

TRICHOBEZAR—REPORT OF A CASE*

By A. H. BARKLEY, Lexington.

Foreign substances in the lungs and alimentary track of human beings are by no means uncommon. The ancients knew of their existence in the stomach of animals and were prized highly, for they believed they possessed superior virtue as Charms. The method of introduction of these into the human subject by swallowing is more noticeable in some vocations than others, as in shoemakers, lathers, dress-making and etc., due to the habit they acquire of holding pins, needles and nails in their mouth and in young children. They are perhaps more often found in persons suffering from neurosis, dementia, or idiocy and in the case of Trichobezar more frequently in women than in men. Hart in

The Journal American Medical Association, December 1st, 1923, reports a number of cases of Phytobezars and says the bezars may be divided into four classes.

1st, Trichobezar or Hair-ball.

2nd. Trichophytobezar—this class is usually formed by the admixture of ingested vegetable matter and hair.

3rd. In this class the foreign substance in the stomach is formed by persons drinking strong alcoholic solutions of shellac, which which together with the food and extraneous matter form a mass.

4th. Phytobezar or food-ball is rare, and usually consist of fiber, skins, seeds, and etc. The skin of the persimmon seems to be a very potent factor in this group, as the skin contains a fair percentage of pectin and gums that is thought to favor cohesion.

B. F. White, age 7 years was brought to the hospital from her home in Eastern Kentucky July, 10th, 1925. History was negative except whooping cough 5 years ago, recovery complete. She was fairly well nourished, appetite only fair, bowels and kidneys were normal. At the time of admittance to the hospital it was thought she was not up

*Read before the Fayette County Medical Society.



to the normal mentally, but upon longer and closer observation it was clear that we were mistaken in this respect. The fact of her being diffident and with difficulty could get her to talk forced the first impression. Her parents were healthy, she being one of nine children, all of whom were normal.

When she was two years of age it was noticed she was losing her hair on either side of her head and it later developed she was pulling it out and swallowing it. Her parents tried to break her of this habit and for a while thought they were successful, this summer, however, they caught her at it again and took her to a local doctor, who upon examination found a mass in her stomach and sent her to the writer for further treatment.

She had some pain, mass was freely movable, hard and could be well outlined which corresponded to the shape of the stomach. It being impossible to get an X-ray picture at that time, a tentative diagnosis was made of 'Hair-ball' in stomach. It might be stated that all solid food for three weeks prior to being brought here was vomited and nothing but liquids could be retained. The patients abdomen was opened and an attempt to deliver the stomach was found impossible due to adhesions between cardiac end of stomach and parietal peritoneum, this no doubt accounted for most of her pain. The stomach was opened close to the pyloric end well up near the lesser curvature, the size and shape of the mass necessitated such an incision in order to more easily deliver it.

The accompanying cut shows the hair-ball that was removed. Opening in stomach and abdomen closed in the usual manner, an uneventful recovery followed, except for a small stitch abscess that healed promptly.

Excreta Do not Contain Bacillus Botulinus.—

Easton and Meyer failed to find *Bacillus botulinus* in the stools of eighty-eight healthy persons, although it was known that the spores were being ingested on raw fruits and vegetables which served as food. Three hogs and two cattle specimens, or five out of fifty samples of animal excreta collected in widely separated areas of California from hogs, cattle, horses, sheep and chickens, contained *B. botulinus*, Type A. The evidence secured from an examination of ninety-five manure specimens strongly indicates that animal excreta contributes relatively little to the pollution of the soil with *B. botulinus*.

SOCIAL HYGIENE FOR ADOLESCENCE BETWEEN THE AGES OF TWELVE AND SIXTEEN YEARS.*

By R. C. FALCONER, Lexington.

This pamphlet will, from the nature of the subject, treat principally of matters pertaining to sex; and as it is the firm conviction of the author that the duty of imparting to children whatever sexual knowledge is necessary belongs primarily and mostly to the parents, the remarks that follow are addressed to the latter.

The word, Hygiene, in its usual and general sense, means the science of health and well being of the body, and all that pertains thereto; used in the restricted sense as social hygiene it applies to individual and general ethico-moral conditions of living, and everything affecting the actions and relations of society. Like all other movements directed toward social reform, this branch of sociology has been slowly evolved from careful study of social conditions, broadened educational scope, and the practical experience of those interested in the subject and working for the improvement and uplift of the human race.

The idea of social hygiene is not altogether novel; only the specialization of the subject and organized action are new or modern. Marcus Aurelius was a public teacher of morals and delighted to instruct the Roman youth in the principles of good conduct and morality. It is doubtful, though, if he, Seneca or Epictetus, even touched upon the vital phase of the subject under present consideration.

It has been truthfully said that the education of the child begins with the parents; it might be more truthful to say it should begin with the grandparents. We cannot teach others what we do not know ourselves, and as this process of moral training of the young is of comparatively modern adoption, it behooves parents to study this question for the sake of their children. The author thinks public sex instruction should not be given in the school, where it might do more harm than good.

The advice and co-operation of the minister or physician will be helpful and should be invoked. Albeit this treatise is intended for the moral instruction of adolescence, it seems expedient and not out of place to say something about little children in the nursery, since the care and training they receive in the earlier years of life may have an influential bearing upon their future character. Our

*Read before the Fayette County Medical Society.

grandmothers used to shudder at the very thought of little boys and girls running about the nursery in Adam and Eve fashion; and yet this freedom is believed by those who have made a special study of children to do away with false modesty, check curiosity and prevent future pruriency.

Personal cleanliness of children is not alone a matter of health, but is necessary from also a moral standpoint. Children, especially boys, need to be examined with reference to the physical condition of the genital organs, as it is a well known fact among physicians and nurses that local irritation from phimosis (stenosis or narrowing of preputial orifice) prevents cleanliness and leads to vicious habits. With reference to girls, in this particular, rectal worms often cause irritation of the genital organs. These are important matters and should receive prompt medical attention. Phimosis should be relieved by circumcision, and in girls having adhesions around the clitoris lifting the hood has been advocated.

As soon as little children notice things around them, talk and go to school they begin to wonder and ask questions as to whence and how they came into the world. They should not be rebuffed, but given a simple, evasive answer, suited to their intelligence, which will satisfy them for the time being, and at the same time not check their confidence.

The age of puberty, time of sexual awakening, begins between the ages of twelve and sixteen years and is a critical period. Up to this time in accordance with normal physiology the primitive instinct or sexual impulse has been dormant, and it is but natural that the attention of the youth be attracted to the changed condition. By this time, however, he is old enough to receive intelligently some explanation of the sex impulse and its purpose. Many a youth has strayed from the path of moral rectitude by sheer ignorance of the meaning of sex conditions. Prior to this movement of social hygiene, the traditional policy of silence and *laissez faire* was adopted and rigidly enforced in the teaching of morals. Such a system has proved to be disastrous and the positive decree of modern education along this line is that such an important matter must not be left to chance.

Another potent factor in bringing about the present change of attitude toward the sex question is the fact that people of modern education and culture do not regard anything in moral, unperverted nature as repulsive or uncanny; on the contrary, they admire and respect all works of nature, animate and in-

animate.

It is doubtless the part of wisdom for parents to teach children nature as it really is and must be; its physical, inexorable laws; teach them at least something of their meaning and purpose in life, rather than adopt the policy of reticence and let alone, and allow vicious companions to initiate them into the ways of immorality. The law and order of nature is that sexual continence and chastity be preserved inviolate until marriage. Youth must be impressed with this fact, and at the same time given all possible assistance. To be sure the pure life is beset with trials and self abnegation, but it is not impossible if the conditions are made favorable and the various means adopted; otherwise what Sir Thomas Browne in *Religio Medici* calls the internal militia of will gain the victory.

When and how should sex instruction be begun? It must be admitted that this is not an easy matter at any time, for the principal reason that the minds of children and youths are curious, plastic and impressionable; and unless we begin and proceed cautiously and tactfully a wrong impression will be made and the end of the instruction be defeated. Some youths are mentally, others, physically, precocious; hence it becomes necessary to take into consideration the temperament and disposition of each individual case.

The very first step for parents to take in this matter is to gain the affection and confidence of their children. Then there are two methods of approaching them on the subject of sex, the direct and indirect. Parental vigilance will often find an opportunity to come directly to the subject, otherwise the indirect approach at the proper time will be better. If the subject is abruptly broached there is danger of making a wrong impression. Do not teach them any more than discretion suggests, but enough to make them understand. And do not wait until the youth has had a pitfall or been taught vice by others. Fathers should teach boys, mothers girls, something of sex physiology and reproduction, which they are going to learn, any how, and it is far better, as we have said before, to understand nature as it is than to have erroneous ideas of such vital things. Helpful analogy can be drawn from botany and the lower forms of animal life. The sublime meaning and sacredness of fatherhood and motherhood should be impressed upon children. As they grow older they will learn that while sex impulse is just as fundamental as the impulse of nutrition, it must be restrained and

mastered, the higher self ruling over the lower animal nature. While the mere knowledge of evil does not prevent it, such knowledge with intelligence and co-operation of the will constitutes a powerful moral armament.

In order to have and preserve personal purity, it is necessary to keep a clean mind, which, like the body, grows upon what it feeds. Two common prolific occasions of immorality are idleness and loafing. When boys and girls are not in school they should spend their time in some useful occupation or innocent amusement. We cannot emphasize too strongly the importance and beneficial influence of athletic games, which divert the mind, invigorate the body and give vent to the superfluous energy and animal spirits of youth.

Parents, encourage your boys and girls to engage in those things and their manner of living and thinking will be thereby made better. Parents and teachers of morals have many antagonistic agencies and institutions with which to contend, such as licentious literature, sex dramas, obscene picture shows, suggestive female attire, lascivious dances and other public evils too numerous to mention, and all seemingly irrepressible. Anti-vice commissions are being organized throughout the country, and legislation being invoked, but it will avail nothing without education and awakening of the people to the fundamental causes of immorality. Parents must admonish their children against, and keep them away from the evils just mentioned, which arouse the sexual passion. For the same reason the use of alcoholic stimulants should be interdicted during adolescence. The consensus of opinion among moralists is that many of the present evil institutions and public vices are, for the most part, the fruits of neglected moral training in childhood and adolescence. The youth of today will be the men of the future. The character of these men will depend upon the education and training of early life. It remains for parents to direct their children to the paths that lead to the sublime heights of true manhood and womanhood; and certainly this is the best legacy they can leave them.

SYMPOSIUM ON DIAGNOSIS AND ITS SIGNIFICANCE IN DISEASES OF CHILDHOOD.*

NEUROLOGY

By WM. F. STUCKY, Jeffersontown.

In any study of the diagnosis of disease in children the nervous system must of necessity command a great deal of our attention. This is especially true in early infancy. At birth the ratio of the weight of the brain to that of the body is nearly 1:8. It has been demonstrated by Donaldson and Sugita that the human cortex attains its maximum thickness in about fifteen months, at which time cell multiplication and migration cease. It is probably true that the inhabiting function of the brain is not at its maximum until this time, while the irritability of the preinheral nerves has reached its maximum long before this. Thus we have a relatively large size, rapid growth and immaturity of the brain and cord resulting in an unbalanced condition for a period of time, which is, no doubt, responsible for many of the peculiar nervous manifestations seen during infancy and even the second and third years of life.

This is shown by the exaggerated manner in which the child reacts to different forms of stimuli, as a high temperature, errors in diet, phimosis or intestinal worms. The instability of the nervous centers is such that apparently trivial causes are enough to produce quite profound symptoms. In some children every acute illness will be ushered in by a convulsion. In others the slightest elevation of temperature, perhaps not over 100 degrees, will cause delirium. We have all seen this type of child in whom there is no definite pathological nerve lesion as far as one can diagnose. He seems to have entered life with a deficient supply of nervous capital; he is handicapped from the start, and "goes under" when especial demands are his stock of nerve force. Imperfect nutrition,—either over or under feeding—seems to contribute to this condition. An early recognition and treatment of these nervous manifestations is important, for they lie at the root of very many of the neuroses of early

*Read before the Jefferson County Medical Society.

life, i. e., extreme nervousness, disorders of sleep, stuttering, chorea, incontinence of urine and epilepsy.

As important as are these nervous conditions in the future life of the child, even more serious are those diseases in which there is a definite pathological lesion of the brain or cord. Intracranial hemorrhage of the new born, if survived, is nearly always followed by paralysis, mental deficiency, and a general lack of development. Although Sarah MacNutt showed, forty years ago, that cerebral hemorrhage is, to the infant, one of the most serious complications of a prolonged or difficult labor, it is only in the past few years that any definite steps have been taken in diagnosing and treating it. Lumbar puncture, both as a diagnostic and therapeutic procedure, is accomplishing a great deal in these cases. It should be resorted to at once in any case of asphyxia and convulsions within a few days after birth.

Acute poliomyelitis is another disease in which it is very important that an early diagnosis be made if possible. During an epidemic this is not so difficult, but sporadic cases are very seldom diagnosed during the early stages. Diagnosis before paralysis begins can only be made by lumbar puncture and microscopical examination of the spinal fluid. After paralysis has developed the outlook is always more or less unpromising, partial function being the best we can hope for in most cases.

The susceptibility of the brain and cord in children is so great that in any acute illness one should be watchful for any signs of irritation or inflammation of these structures. In a young child headache is nearly always a sign of meningeal irritation; in older children it may arise from the same causes as in an adult. The presence of stiffness of the back and neck in a child with an acute onset should at once arouse suspicions of meningeal irritation. In every acute illness an observation of the pupils, examining the reflexes, notice of the appearance of the anterior fontanel, testing for the Kernig and Babinski signs, and a lumbar puncture, when necessary, will result in earlier and more correct diagnosis of these organic conditions.

It is beyond the scope of a paper such as this to go into details regarding all the diseases of the central nervous system. The gravity of these conditions is known to all of us. Early and proper diagnosis is essential if we wish to treat these cases in such a way as to minimize as far as possible the dreadful af-

ter results of blindness, deafness, mutism, paralysis, feeble mindedness or insanity.

One important point, emphasized by Holt some years ago, is that very grave permanent results often follow relatively small organic lesions. It is not so much the actual pathology present as the effect upon the sensitive growing structures that seems to produce the harm.

Chorea, although of no definite pathology, and, in fact, considered by some to be purely functional, is of such importance in childhood that it should not be overlooked in the present discussion. Endocarditis is, as we know, the most constant complication as well as sequel. One or even more recurrences of chorea are the rule. So great is the effect on the nervous system of the child that after several attacks, or even one attack, he is never a perfectly normal individual. He is always more or less emotional, "high strung" and of a general nervous temperament, the effects lasting practically through life.

Realizing, as we must, that neuroses cause more suffering among the human race than any other ailment, and that perfectly balanced emotionally stable adults are no longer the rule, the need for an early recognition and proper appreciation of the importance of the nervous system of the infant or young child cannot be emphasized too much. A great responsibility lies with those who treat children in the upbuilding of the future citizen who will be mentally, as well as physically, able to fill his proper place in society.

Individual Prophylaxis of Venereal Disease.—Kroeff advocates the Gauducheau method of personal prophylaxis rather than the "American method." A combination of cyanid of mercury and thymol with the Metchnikoff ointment protects against gonorrhea as well as against syphilis, while the single collapsible tube is more convenient than a fluid to use with the ointment. He insists that youths should be trained in the use of personal prophylaxis as a matter of course until this becomes a habit like the use of the toothbrush. In 100 men examined, the first sexual intercourse had been at the age of 11 in 4 cent; and at 14 in 26 per cent. Venereal disease before marriage was known in 65 per cent; per cent; at 12 in 10 per cent; at 13 in 23 per cent; until marriage in 0 per cent. His experience has been that public lectures on sexual enlightenment are not attended by the ones who need enlightening most, and he is convinced that the task of education and diffusion of individual prophylaxis belongs to the school. The young should be instructed privately or in small groups and the wisdom and advantages of chastity instilled at the same time. "If men acquire the habit of preventive disinfection, the venereal diseases will disappear."

ENDOCRINOLOGY IN CHILDREN*

By JAMES W. BRUCE, Louisville.

As it is obviously impossible to cover the subject of endocrinology in a ten minute paper, I will endeavor to discuss a few outstanding practical points in this field upon which there is some unanimity of opinion, omitting those aspects of the subject which are largely speculative and theoretical.

Thyroid.

"The thyroid exercises an influence on the growth of the skeleton on the development and activity of all the tissues including those of the central nervous system. The thyroid, along with other glands of internal secretion, influences the development of secondary sex characteristics and mature sexual life and through its secretion controls the body metabolism" (Nellis Foster).

Increased activity of the thyroid gland, or hyperthyroidism, is rarely in children before the tenth year. From this age on, however, until the changes of puberty are fully developed, it is not uncommon. It is usually regarded as a compensatory hypertrophy since the rapid body growth at this age period throws heavy demands upon the thyroid (Halsted). It usually responds to medical treatment and rarely becomes severe as to require surgery.

Medical treatment consists of:

1. Rest. This is best secured by insisting upon the proper number of hours at night and one hour in the middle of the day. Daily massage is a valuable adjunct. Competitive games or other exciting activities should be restricted.

2. High calory diet. The thyroid regulates metabolism and therefore when its activity is increased it is necessary to furnish increased fuel to supply the over-active body furnaces.

3. Careful search for and removal of foci of infection, e. g., tonsils, teeth, etc. Toxins absorbed from such foci stimulate the thyroid to increased activity.

Hyperthyroidism of puberty is a preventable disease. This was shown several years ago by classical work of Marine on school children. He observed two groups of children over a period of years. To one group he gave small doses of iodine. The other group received no iodine and served as control. In the group receiving iodine almost no hyperthyroidism developed, while in the group receiving no iodine the usual percentage developed. The dose of iodine necessary to prevent

hyperthyroidism seems absurdly small 10 mg. of iodine once a week. However, since it is difficult to remember to take a pill once a week, it is more practical to use one of the brands of iodine containing salt in cooking.

Deficiency of the thyroid is not uncommon. Mild cases are the fat, phlegmatic, constipated children that do well on small doses of thyroid extract. The severe cases or cretins can be greatly improved by thyroid extract, especially if it is begun early in life and given conscientiously. However, no matter how early it is begun or how regularly it is given, cretins never become normal.

Parathyroids.

The parathyroids are associated in some way with the metabolism of calcium (MacCallum). Removal of these glands results in tonic contraction of certain voluntary muscles known as tetany. The position assumed in the convulsions of tetany is very characteristic, e. g., the legs are extended and the thumbs are crossed over the palms. This is the position usually assumed by an infant in a convulsion. Tetany is very common among infants. It is thought by some authorities to be the underlying cause of the tendency to convulsions exhibited by infants. Blood calcium studies show deficiency of calcium in infants with convulsions. However, calcium deficiency in infancy is not thought to be due to deficiency of parathyroid secretion, but to lack of absorption of calcium from the gastro-intestinal tract. Feeding of parathyroid extract has never produced uniform clinical results.

Thymus.

Positive evidence of the presence of internal secretion from the thymus has never been obtained, although it has been claimed by some that there is a secretion which has to do with growth, and by others that it has to do with resistance to infection. Feeding of thymus extract has never produced uniform clinical results.

Our chief interest in the thymus lies in the production of mechanical pressure on the trachea resulting in some cases in respiratory obstruction and death. The size of the thymus is not as important as its position in the chest. The superior thoracic outlet measures about 2 cm. from sternum to vertebral column, and between these unyielding walls are contained such vital structures as the trachea, esophagus and great vessels. Sudden engorgement of this vascular gland would result in disastrous pressure at this strategic point. This is generally considered to be the pathogenesis of thymic death and is probably the cause of most of the unexplained sudden

*Read before the Jefferson County Medical Society.

deaths that occur in infancy and childhood.

When engorgement of the thymus does not result in instant death, it gives rise to such alarming respiratory symptoms as dyspnea, stidor, and cyanosis. These symptoms come suddenly and go suddenly, the attack lasting from a few minutes to an hour or more. An attack of this kind calls for immediate treatment as the next one may be fatal. X-ray exposure is most efficient in reducing the size of the gland. Surgical removal carries prohibitive mortality. I have never heard of any had effects from roentgenotherapy in these cases.

Enlarged thymus is part of the general condition known as status lymphaticus and is the probable cause of the sudden death so often seen in those cases.

Pituitary.

Froelich's syndrome is supposed to be caused by deficiency of the pituitary gland. This condition is characterized by short stature, long tapering fingers, large hips, large breasts, infantile genitalia, and exceedingly high tolerance for sugar. These children are usually brought to the doctor when 14 or 15 years of age because of undeveloped genitalia. I have never seen any result from pituitary therapy in these cases either by mouth or hypodermic. Of course, if therapy is pursued long enough, the changes of puberty will take place in time, just as they would if no gland extract had been given, and in that event therapy would probably get credit for having produced the result.

Diabetes insipidus is usually considered to be due to deficiency of pituitary secretion. It is an occasional cause of nocturnal enuresis. These patients can be relieved of bed wetting as long as hypodermics of pituitary extract are given, and revert to their former status as soon as they are discontinued. Pituitary extract by mouth has never brought results in my hands.

Pancreas.

Insulin has been a God-send to children in two ways:

1. Before the advent of insulin practically all children with diabetes died. Now, however, when carefully treated with insulin and diet most of them live, although the treatment has to be continued indefinitely.

2. Insulin is used with glucose intravenously in acidosis. We have always used glucose intravenously in acidosis, but before we had insulin much of the glucose was excreted by the kidneys and lost. Now, by combining insulin and the glucose, in the proportion of 1 unit of insulin to 2 grams of glucose, the

glucose is metabolized and not lost.

The temptation to all who write about endocrinology is to be carried away from accepted facts. Theoretically organotherapy has great possibilities; practically, few of these have been accomplished.

INDICATIONS FOR TONSILLECTOMY.*

By CLAUDE T. WOLFE, Louisville,

Since the time of Hippocrates the tonsils have been recognized as a menace to human life. Even at that early date evulsion of the tonsils by the finger was occasionally practiced, as was tonsillectomy. A review of the literature on the function of the tonsils is a bit disappointing and leads us almost to conclude that we have not advanced far beyond the knowledge of some of our earliest conferrers on this particular point.

The indications for removal are fairly well defined in the minds of the majority of operators, and the pathology we feel comfortably certain about. The function of the normal tonsil in a normal throat is surrounded by a haze that gives pause to any man who is called upon scientifically and specifically to define it.

Minor states that: "The tonsils are lymph nodes having direct connection with the cervical lymph nodes by efferent vessels. Their afferent vessels are represented by the tonsillar crypts, but are in reality the currents of air and saliva within the mouth. As these currents flowing toward the tonsils are far more frequently foul and infected than are the lymph currents flowing to any other node, therefore, it follows that just so much the more frequently do they become diseased and a menace to the health of the individual."

A study of the action of the tonsil under inflammatory changes leads us to believe that its function as a protective barrier is very similar to that of other nodes of the lymphatic system.

There is sufficient clinical proof to justify us in the belief that the tonsils are the portals of entrance of systemic infection of various kinds, but it is conceivable that before they can become such, their resistance to the entrance of infection has been broken down by being forced continually to combat invading organisms.

It is possible that the tonsil has an internal secretion, as have other so-called ductless glands, but the function of this is either lost early in life or else readily assumed by other lymphoid elements of the body. The true function of the tonsil, whatever it may be, is not considered as a factor for or against its removal. The functional theories ad-

*Read before the Jefferson County Medical Society.

vanced are many and varied, and there is no definite consensus of opinion regarding them. However, there is no proof, to my knowledge, that the loss of diseased tonsillar tissue has ever been detrimental to the development or health of any part of the human economy; and it is, therefore, reasonable to conclude that if the tonsils have a definite use, there is a compensatory reaction in other tissues which assumes this function after the complete tonsil operation.

While the faucial tonsils are under consideration, their intimate association with the pharyngeal tonsil, or adenoid, makes it impossible to isolate, from a surgical point of view, these tissues in every case as separate and distinct structure which may functionate or become diseased independent of each other. Disease of the adenoid rarely exists without involvement of the faucial tonsils; and to remove one without the other is to invite a second operation before the desired result is obtained.

The indications for the removal of tonsils and adenoids are pretty well agreed upon. It has been frequently my experience that the indications are not left entirely to the rhinologist, but a patient is referred by the pediatrician or internist, with instructions to remove the tonsils, as they are the seat of focal infection.

In considering the indications for the removal of tonsils, we believe that the chronically hypertrophied types come under our observation more often than any other. Their size does not constitute a reason for removal. A roomy throat will accommodate quite an excess of tonsillar tissue where a throat normally narrow or shallow would be decidedly obstructed by a tonsil of the same size. Surgical intervention in this type becomes necessary only when there is interference with phonation, deglutition, respiration or audition.

Large tonsils should be removed when the voice begins to lose its clear tone or the pronunciation of lengthy words becomes a matter of effort; if there is swallowing with difficulty, and a non-productive cough; if there is an otalgia, otorrhea, tinnitus aurium and deafness, as the result of pressure on the pharyngeal end of the eustachian tube. All of these symptoms may be present, and the removal of the existing chronically enlarged tonsils is a matter of common sense.

Tonsils that are susceptible to acute inflammatory attacks seem to be void of the faculty of acquiring immunity and each attack finds them offering less resistance to bacterial invasion. Often there is an intermittent period in which the tonsils are apparently quiescent for an indefinite time. Then, with the slightest provocation, they become acutely inflamed, and the patient is

prostrated within a few hours. With each attack the submaxillary and deep cervical glands are taxed more severely, and being weakened by previous overwork, react more slowly and less efficiently. Cheatham says: "When faucial tonsils cross the dividing line, when physiologic self-protection gives way to overpowering pathologic invasion, the condition becomes analagous to that of the sick soldier still on duty, but weakened in morale by continued reverses. He turns traitor through sheer inability to fight even a poor battle, and unwittingly creates a vulnerable point, invites destruction of the defensive, and opens the way for invasion to parts beyond."

In the submerged type of tonsils, that are susceptible to inflammatory attacks we usually find the enlargement of the submaxillary and deep cervical glands persisting long after the attack has subsided, and frequently they fail to respond to rational treatment. This is probably due to the fact that they are actively engaged in an attempt to destroy the toxins generated in the tonsils. Close examination of these tonsils will usually reveal inflamed pillars. The writer employs suction in all of these cases where possible, and by means of a glass tube, draws the tonsil out of its bed. This permits one to more accurately determine its size; whether or not there are any adhesions, and it also enables one to determine the character and kind of material that the crypts are harboring, as the suction not only draws the tonsil into the pharynx but squeezes it as well, and thereby empties the crypts to a marked degree. This method is not only useful from a diagnostic standpoint, but is also advantageous in preparing the tonsil for operation, in the event this has been decided upon.

Recurring peritonsillar abscesses offer a distinct indication for the removal of tonsils and the operation should be done as soon as the inflammation has thoroughly subsided.

That tonsils are often the seat of a focal infection, I am sure, goes without argument. Many authors state that they are second only to the teeth as infective foci. Many of the dangerous and virulent bacteria find here favorable conditions for growth, accumulation and absorption of toxic products. The diagnosis of focal infection of the tonsils should be established by eliminating a similar process in the teeth, accessory sinuses, gall bladder, etc., with due consideration for past and present conditions of the tonsil itself. The physical appearance of the tonsil is often no index to its true condition. Some of the most innocent, normal-looking tonsils have proven to be pockets of virulent pus. Here, again, may I mention the advantage that suction offers. To mention the diseases that are

caused by focal infection of the tonsils, I am sure would be unnecessary, but a few of the commoner ones are endocarditis, articular rheumatism, nephritis, etc.

Therefore, summarizing, we believe the principal indications for the removal of tonsils to be, first, the large tonsil that produces obstruction, interfering with speech, singing, breathing, swallowing, and the function of the eustachian tube; second, the tonsil that is susceptible to recurrent tonsillitis; third, those that are susceptible to recurrent peritonsillar abscess; fourth, the tonsil that taxes the cervical glands to their utmost and results in their chronic enlargement; fifth, the chronically inflamed tonsil; and sixth, the tonsil that we have determined as being the seat of focal infection, although macroscopically it appears innocent.

Time forbids me to include tuberculosis and tumors. I trust that these indications will be considered in the discussion.

In conclusion, I believe this paper would not be complete unless something was said about the contraindications for the removal of tonsils. Among these I might mention hemophilia. This condition, though rarely encountered, can always be determined by taking the clotting time of the blood, a procedure which, I am glad to state, prevails as an obligatory measure in Louisville hospitals.

Epidemics also offer a contraindication. It certainly would be poor judgment to create an open wound in the throat during an epidemic of measles, scarlet fever, diphtheria, etc.

Certain constitutional conditions, as acute pulmonary tuberculosis. Even though we may be sure that the tonsils are tuberculous because proven so by the microscope, the removal of the tonsils during the acute stage is not justified, with the possible exception of greatly enlarged tonsils, which practically occlude the air passages. There is no possibility of arresting the process by a tonsillectomy, and, because of post-operative reaction, regardless of whether a local or general anesthetic has been employed, there is a great probability of exciting a fulminating process, which always accentuates the pulmonary condition.

The acute febrile diseases offer another contraindication to tonsillectomy. Under this head may be mentioned acute nephritis, acute rhinitis, acute pharyngitis, acute cystitis, acute bronchitis, acute tonsillitis, etc.

The last contraindication I will mention, although there are others, is age in infants under three or four years, although they are susceptible to acute pulmonary and middle ear diseases arising from tonsillitis and infections of the adenoid, it is usually advis-

able to treat the tonsils and adenoids by local applications, as the results obtained by these measures are usually gratifying with few exceptions. Old age is not without its tonsillar troubles, and we are often confronted with advisability of operation. No hard and fast age limit can be fixed. Each individual must be considered from the angles created by his particular case and a decision based upon common sense. It is wise to assume a non-operative attitude toward the aged, but not with a mind closed to reason. Both in infancy and old age, tonsillectomy should be looked upon as a measure to be resorted to only after less radical means have failed and conscientious investigation convinces us that we are fully justified in subjecting the patient to the many dangers incident to any interference with nature during the critical years at the extremes of life.

THE DIAGNOSIS OF SOME SURGICAL CONDITIONS IN CHILDREN.*

By R. LINDSEY IRELAND, Louisville.

In a symposium of this character, where the essayist is limited to fifteen minutes, only a few subjects may be considered. I shall, therefore, invite your attention to the ones most frequently encountered. Fractures are the most frequent surgical conditions seen in children, and here I will strongly advocate the use of the X-ray to confirm the diagnosis and anesthesia in aiding in reduction, and again raying the injury to confirm proper reduction; then, and then only, should all the parties involved be satisfied,—and the least of these is not the surgeon. This subject cannot, of course, be considered in detail and perhaps I could do no better than to leave it right here.

The diagnosis of appendicitis in children is usually more difficult than in adults and frequently requires all the acuteness of interpretation of the pediatrician and surgeon combined to determine the acuteness of the pain and its location. The characteristic guard that is so helpful in diagnosis in adults is not infrequently absent in children, and the use of an anesthetic is at times very important in making a satisfactory examination,—especially when not carried to surgical degree,—for then the tenderness on pressure can usually be elicited as well as the guard. At this time, also, a blood specimen can be easily secured and white cell count made. If in doubt as to diagnosis, repeat the procedure in a short time, for with increasing frequency of pulse and number of

*Clinical report before the Jefferson County Medical Society.

leucocytes, pain, guard and tenderness on pressure over appendix, with or without high temperature—for the matter of temperature in this condition is quite unreliable—the diagnosis of appendicitis is justifiable and operation advisable. Devote great effort in arriving at a diagnosis early, for there is no abdominal operation easier or safer than for appendicitis before the infection extends beyond the confines of the vermiform appendix. I heard one of the greatest surgeons I ever knew make this statement: "The only mistake I ever made in appendicitis was in not operating early enough."

In the "acute surgical abdomen" there are many conditions possible in children; among these are:

- (1) Intussusception
- (2) Inflammation of Meckel's diverticulum—the remains of the omphals mesenteric duct.
- (3) Pyelitis.
- (4) Intestinal paresis from toxemia or peritonitis.
- (5) Various forms of intestinal obstruction of reflex origin, due to injury or disease.
- (6) Volvulus of small or large intestine.
- (7) Stricture of intestine.
- (8) Fecal impaction.
- (9) Intra-peritoneal adhesions.
- (10) Intestinal strangulation by unnatural openings in mesentery or omentum.
- (11) Venous mesenteric embolism or thrombosis.
- (12) Torsion of the omentum.
- (13) Hernia into retroperitoneal pouches.
- (14) Hernia into or through abdominal parietes or diaphragm.

While this list is not complete, it indicates the need of very careful study and thorough examination of the "acute abdomen," and when in doubt, resort to exploration.

Perhaps the next most frequent abdominal surgical lesion in children to appendicitis is intestinal intussusception, and the most frequent variety of the latter by far is of the end of the ilium into the cecum; in fact it occurs about as frequently as all the other varieties combined, and a very large per cent of these cases occur in children under one year. In no condition is the early diagnosis of more prime importance—not even appendicitis—which it so simulates.

Symptomatology of intussusception:

Sudden abdominal pain, with attendant shock steadily increasing, is usually spasmodic and is frequently mistaken for ordin-

ary colic of severe nature. Not infrequently recurring evacuations largely of serosanguinous-mucus, without fecal matter, except at onset of symptoms; frequent vomiting with increasing abdominal distension and probably the development of a palpable sausage-shaped tumor. Failure to find this mass, however, even under anesthesia should not negate the diagnosis. With pulse increasing in frequency—and more marked shock, with characteristic general appearance of such, operative procedure should be instituted without waiting for the development of a palpable mass.

Erdman reports that no palpable tumor was found in 60 per cent of his cases. Wallace, on the other hand, has been able to palpate a mass in a large majority of his cases. It should be borne in mind that this condition may be insidious in its development, the tumor mass growing very slowly, which is fortunate if it is properly interpreted and acted on, for manual reduction will all the more probably be possible.

Gibson reports that 94 per cent of his cases were reducible manually on abdominal section when thus treated in the first 24 hours, whereas only 61 per cent were reducible on the third day.

The plea is here made for early diagnosis and operation, for as previously stated, the mortality of no condition is more favorably influenced by such than is intussusception, because the success of the operation and life of the child depends largely on being able to reduce manually the invagination.

Illustrating this point, Gibson as quoted in Jacobson's Surgery, in his collection of 1000 cases of intestinal obstruction, found only one case of recovery after resection for gangrenous intussusception.

The hope of the future in these conditions lies not in successful resection, but in early diagnosis, abdominal section and manual reduction.

Inherited Syphilis in the Second Generation.

—Higoumenakis gives the details of nine cases published since 1908 and of thirteen from his own observation, in which the inherited syphilis had flared up in the second generation, even when it had lain latent through the first generation. The Wassermann reaction may be negative, notwithstanding hemiplegia or other manifestations of the spirochetal lesions. Treatment should be the same as for acquired syphilis possibly supplemented with organotherapy, as the inherited taint in the second generation is liable to be as grave as in the first generation.

PEDIATRICS.*

By MORRIS FLEXNER, Louisville.

About twelve years ago I attended the opening exercises of the Harriet Lane Home, the pediatric division of the Johns Hopkins Hospital. At it, addresses were made by several distinguished doctors, a few of them being pediatricists. I recall that Dr. Jacobi, Dr. Holt and Dr. Howland spoke. Out of the whole exercises I carried away only one impression and that was from Dr. Jacobi, the Father of American Pediatrics.

He told why it was that pediatrics fascinated him and held his interest keenly throughout his many years of active practice. He said the reason he liked it was because babies never lied to him, never tried to deceive him. In other words, in the presence of a sick baby or child, you are face to face with your problem. Some nervous women or men will attempt to flood you with an outpour of irrelevant, deceiving details and possibly lead you far away from the field in which the cause of the disease is to be found. Not so a baby. There are no subjective symptoms to help you or mislead you; the diagnosis, must, of necessity, be largely objective, and as a result, the keener the perception of the hunter and the more of the detective in him, the closer he will come to finding out what really ails his patient.

Dr. Jacobi did not mean to convey the idea that a well given history from an observant parent is not important. It is of the greatest importance, and even for older children it is usually best obtained from the parent or nurse. For example, in the condition of pyloric stenosis, one can usually make the diagnosis without seeing the child. The age and sex of the patient, the time the vomiting began, the nature of the vomiting, the character of the stool, the loss of weight, are all so characteristic. However, the observing of peristaltic waves and the occasional palpation of a tumor in the epigastrium are confirmative of a suspicion and are, therefore, of more value, according to Dr. Jacobi's idea. But the two things go hand in hand.

The family history should be a complete one, especial inquiry being made about the mother's health before, during and after the pregnancy is important. The following the pregnancy is important. The following are a few of the important points about which some notation should be made; the length and type of labor whether instrumental or not; the growth and development since birth, as

to weight, teeth, holding up of head, standing alone, walking, etc.

Feeding histories are always important in cases of disturbed nutrition. The condition of the child at birth, whether it nursed regularly or not, its weight at birth and since, the question of vomiting in regard to type, character and interval after nursing; the question of stools, as to number, character, color, odor, must all be elicited. Most important are the kinds of foods it has taken. Fortunately, feeding histories are getting simpler these days, for formerly most of these cases went from breast milk, to condensed milk, to fifteen to twenty types of food, before being brought to a hospital or special feeding clinic to be straightened out.

Feeding histories in older children from eighteen months to three years, often give the clue to one or several things, which if corrected, will make the difference between an under-nourished, irritable child with a poor appetite to one that eats and gains. I have seen such a simple thing as a nap after the main meal do this very thing. The method of feeding is another thing that if altered, often slightly, gets big results.

One of the most unsatisfactory things in obtaining a history is in regard to pain. Few children really understand what it is and then cannot localize it. Any abdominal pain is located at the umbilicus; a sore throat is often referred to the teeth; nausea is regarded as pain by some; headache is admitted usually, when present, commonly located as frontal. I usually ask about pain but unless the reply is very definite and constant after several questionings, during the examination I pay little attention to the answer.

In the physical examination of a baby the same fundamental principles that are used in adult examination are applied. There are many differences and the normals in one are not the same as in the other. The difficulties in the examination of the infant or child are increased by crying or resistance, so if possible, a quiet subject is obtained. This is done in babies by putting off the unpleasant things until the last, such as inspection of the throat and ears, and, in older children, by getting their confidence. The spoiled or fractious child is a big problem always but usually the removal of nurse, mother, father and both grandmothers, from the room, will, in a few minutes, subdue the worst of them.

The laboratory offers real assistance here also. Blood counts are unusual in the first few days of life, often a high hemoglobin cell count being present for the first ten days, the leucocytes remaining from 10,000 to

*Read before the Jefferson County Medical Society.

12,000. Anemias, leukaemias, leucocytosis exist here too.

Urinalysis is very important, especially in helping to locate obscure fevers. Pyelitis or pyelocystitis is one of the common disorders that will be overlooked without a urinalysis. Acute nephritis occurs often in children.

The Wassermann test is used routinely in most institutions to detect or confirm a suspicious case, usually of congenital lues.

Stool examinations are made for parasites, for the presence of mucus, curds, undigested particles and, bacteriologically, in the dysenteries. Also it is often important to distinguish between a fermentative and putrefactive stool, and this can readily be done. Sensitization tests for foods, pollen and animal emanations in eczema and asthma are often interesting, unfortunately, often more interesting than valuable. Occasionally you can single out one or two foods that are the main offenders and which may be omitted with benefit. Spinal fluid examination in suspected meningitis or birth injuries will often make the diagnosis.

These are a few of the special things done. There are still many others similar to those applied to adult diagnosis.

The X-ray is of assistance, especially in confirming a doubtful pyloric stenosis, and in locating an enlarged thymus. It is of service in bone lesions, tuberculosis, pneumonia and in some of the rare malformations, especially of the gastro-intestinal tract, and a number of lesser ailments.

But, in the end, the diagnosis here is arrived at by the same method as any other field of medicine, by reviewing the historical, the physical and the laboratory facts and making use of the information that they furnish you. Most errors are made because of an incompleteness in one of these three big divisions, occasionally because we disregard the information handed us and sail along on an impression.

DISCUSSIONS

Philip F. Barbour: The symposium presented has been exceedingly interesting. So many things have been considered in the different papers that it is wholly impossible to discuss them in detail. There are a few features about which I would like to say a word or two.

In regard to tonsillectomy: I have had brought to me children whose tonsils and adenoids had been removed yet these children were exactly where they were before the operation. Before the physician advises tonsillectomy he should be sure the operation is indicated and that definite re-

sults will be thereby secured. The size of the tonsil is not an indication for the operation. Some of the physicians who are doing public school work merely look into the child's mouth, discover a large tonsil, and immediately order tonsillectomy performed. The tonsil may not be diseased; oftentimes the formation of the throat is such that the tonsil appears very prominent, but it is not diseased, does not interfere with breathing or swallowing, and its size alone does not constitute an indication for its removal.

There are several definite indications for tonsillectomy which should be carefully considered. If the child has definite enlargement of the cervical glands with a brownish-looking skin, regardless of its size the tonsil should be removed, as we know involvement of the glands is due to infection of the tonsil. If the child has a dirty, brownish color around the roots of the hair, or around the neck below the hair margin, it is certain that toxins are being absorbed from some source, and the tonsil is the most frequent site. If the tonsil is scarred and criss-crossed by adhesions indicating previous infection, the sooner tonsillectomy is performed the better. If there is a history of repeated attacks of tonsillitis with otorrhea, etc., the tonsil is usually responsible and should be removed. If the child has merely had one attack of tonsillitis, I believe it is unwise to condemn the tonsil and say it must be removed. Many children have been seen in one attack of tonsillitis, but there was no recurrence of the disease for many years. Of course, when tonsillectomy is performed the adenoids should also be removed. I believe it is wise to wait until after the fourth year if possible before adenoidectomy, because we know that in many cases there will be recurrence of the adenoid tissue in the post-pharyngeal space which often causes considerable irritation and the operation may have to be repeated. The laryngeal hypertrophied tissue becomes quite an annoyance to the child causing coughing and perhaps injury in other ways.

Dr. Stucky's paper on the nervous system of the child was exceedingly interesting. He discussed a great many points that are very valuable. I want to stress one feature, and that is the question of nerve strain in childhood. The essayist mentioned the fact that the nerves of the child are not sufficiently well developed to withstand very much strain, that there is an overgrowth of undeveloped and uncontrolled brain tissue, etc. In the present day of modernity, with its rush and hurry in all the activities of life, I see many children with beginning nervous exhaustion. This is sometimes the forerunner of convulsions, epilepsy and other

disorders. Our children are living under too high degrees of nervous strain; they have too little time for eating, sleeping and healthful recreation. For example: the child is in school from eight in the morning until two in the afternoon; then takes a music lesson at three and a dancing lesson after that. Is it any wonder that such a child is too tired to sleep at night, and what kind of a nervous system is that child going to have later in life? While we are all apparently trying to avoid nervous strain among our children, the facts are that the present system entails far greater strain than the average adult could safely withstand. Our children should be protected from this.

In the surgery of children there are two points I would like to emphasize: One is appendicitis, which is sometimes one of the most difficult diseases to diagnose in young children that I have ever seen. It is rare that the child refers pain to the lower right abdominal quadrant. Of course, there is a group of clinical systems that suggest appendicitis, i. e., pain, rapid pulse, vomiting and high leucocyte count. I think vomiting in connection with pain should always cause a suspicion of appendicitis. Of course vomiting occurs with a great many intestinal troubles, but in many instances there is no complaint of pain. Whenever the combination of vomiting and pain is present, this should arouse the suspicion of appendicitis.

Intussusception in children sometimes develops very quickly. On a few occasions I have been fortunate enough to recognize the symptoms and have the child operated upon within three or four hours after the onset. On the other hand, children have been brought to me with intussusception which had existed unrecognized for many days regardless of the presence of a large abdominal mass. Many such cases are inoperable. One point which to me always suggests the diagnosis of intussusception is the presence of a large clot of fibrin in the stool with a widely diffused area of sanguino-serous material spreading from this simple clot. Whenever I have seen that present I have felt certain of the diagnosis. The stool of intussusception is not mucus it is sanio-serous in character and has a pinkish tinge.

Dr. Flexner mentioned a great many important facts, touching the "high points" in a very interesting manner. One or two things he suggested I would like to emphasize. One is the test for sensitization of the child to certain foods. When that idea was originated I thought it was going to be of great value, and that it would be an easy matter to test all kinds of food and determine the effects upon the child. Unfortunately I have found it impossible to fol-

low this plan in actual practice. I have had children tested for nearly everything in the world with a great variety of reactions. Foods have been changed accordingly, but the results were not always satisfactory. Occasionally there is something which is particularly outstanding and the elimination of this has been beneficial. We know that horsehair, chicken feathers and certain other things have been known occasionally to cause asthma, but in the majority of our asthma cases the results have not been very much improved by the making of these tests. I think we will have to make some further refinements in these skin tests before we get to the truth of the matter. When a child reacts to ten different kinds of food, then we know that its asthma cannot be due to any one food.

An important feature in the diagnosis of the diseases of children is that we must have far sight. We must not only diagnose what the child has, but, if we are to be thoroughly scientific investigators, we must diagnose the thing that lies in the future of that child. In all the cases we treat in children we must treat not only what we see, but must take a far view and consider what is going to develop when the child grows older. When treating a child in the family for any disease, it is our duty to take into our purview the tendencies of that child and instruct the parents how to train the child and how to prevent illnesses of various types, because we know that the disorder from which the child is then suffering has a certain remote tendency. No physician gives perfect care to the child unless he considers what may happen in the future of that particular child.

W. T. Bruner: I agree with Dr. Wolfe in many of the things mentioned in his paper, but I am not thoroughly in accord with some of his views. It is quite true that removal of the tonsil does not harm the patient so far as future well being is concerned, as apparently he gets along just as well without the tonsil as before. As to the indications for tonsillectomy: I cannot agree with everything Dr. Wolfe has said. As remarked by Dr. Barbour, we must not only diagnose the disease from which the child may be suffering, but also consider the future of that particular child. From that standpoint as a prophylactic measure I believe the tonsil should be removed even though we are not able to diagnose any pathology in that tonsil. The statement has been made by some of our rhinologists recently that a normal tonsil after the first year or two of life is an unknown thing. I do not see any tonsils that I regard as normal after infancy. The question is, though, what is a normal tonsil? We know that the great trouble with the

human animal is that he often suffers from local infection, and the tonsil is probably "running neck-and-neck" in that respect with the teeth. I can see no reason why we should wait until the child is five years old before removing the tonsils when there exists an indication for their removal. A woman from Ohio recently brought her little girl to me with the statement that the child could not walk more than a block without stopping to rest because she "could not get her breath." Examination disclosed that the child had enlarged tonsils and adenoids and urinalysis showed quite a large amount of albumin in the urine. The child was three years of age. The mother stated that she took the child to a specialist who said while the child needed a tonsil operation and also adenoid operation he never removed tonsils under the age of six years. I did not hesitate to remove the tonsils and adenoids and the child made a rapid recovery. Albumin disappeared from the urine, all other symptoms subsided, and the results were simply marvelous in this case. I have removed tonsils in children two years of age. If tonsils and adenoids are responsible for as much trouble as we think or it is claimed they are, why should we allow them to remain in the throat and menace the life of the child? If, as Dr. Wolfe says, and I agree with him, the child can get along just as well without tonsils as with them, what harm are we doing in removing tonsils? We are certainly removing something that is more than likely to cause trouble in the future if allowed to remain. I believe the tonsils become infected early in the life of all children. The tonsil may appear to be perfectly normal, but in the majority of instances investigation will disclose a small pocket of pus. Dentists inform us that one drop of pus at the root of a tooth will cause a great variety of systemic disturbances. A recent writer whose name I do not now recall stated he thought the time was coming when the profession would realize the necessity of removing tonsils as a routine measure. I am not prepared to go as far as that, but certainly I would not hesitate to remove tonsils if they were disturbing the child even though the child might be very young.

One point in diagnosis which I have not heard mentioned tonight, except by Dr. Flexner, is the importance of recognizing infection of the middle ear early. If an early diagnosis is made myringotomy should be immediately performed thereby avoiding future trouble and suppuration. What is the cause of infection of the middle ear? We know that practically all of these cases come from adenoids and infected tonsils. If we remove adenoids and tonsils early we prevent middle ear infection. Of course this would

largely reduce the work of otologists, but it would protect the child from much future suffering.

Dr. Wolfe, I understood to say that he would not advise tonsillectomy in tuberculosis: I have frequently removed the tonsils during the incipient stage of tuberculosis and the patients seemed much benefitted by the operation.

When I began the practice of medicine it was the custom to perform tonsillotomy. It was considered unwise to perform tonsillectomy, and the operation had not been done so far as I know prior to the time I graduated. We now do the complete operation of tonsillectomy, and if performed completely and thoroughly, there is very little chance of the tonsil returning.

Gaylord C. Hall: In discussing Dr. Wolfe's paper there are two or three features to which I wish to call attention. In infection of the middle ear in childhood one of the familiar signs for which we look is the tendency of the child to pull its external ear. While that is a valuable sign, yet it should not be construed to mean that if the child does not pull its ear it has no middle ear infection. Pediatricians will tell us that many infants under one year of age will lie perfectly quiet without any effort to pull the external ear, yet middle ear infection may be present. The child may be too young or too toxic to indicate even by that sign that the ear is infected. So that after all the surest method of determining whether or not we are dealing with middle ear infection is by inspection of the drum. However, unaccountable fever, inability to eat properly, unaccountable restlessness, etc., are symptoms which should draw attention to the possibility of middle ear infection whether the child shows a tendency to pull its auricle or not. It is true that in older children we may expect to have an entirely different impression.

Sometimes there is serious infection of the middle ear without any complaint of pain. These cases occur in the acute infections of childhood where the child is so profoundly impressed by toxemia that the sensorium is unable to register the complaint. I recently saw a child brought here from an adjacent city who was just recovering from a severe attack of scarlet fever and was profoundly toxic. The attending physician had been watching the child carefully and yet overlooked middle ear infection. The child had made no complaint of pain simply because it was so profoundly toxic that the sensation did not register.

As to nerve strain in childhood: I want to call attention to nerve strain dependent upon deafness, which, of course, is secondary in childhood to diseased adenoids and tonsils. The child with enlarged tonsils and adenoids with attend-

ing deafness is practically exhausted at the close of the day simply through increased tension and strain in attempting to hear. That is an important factor it seems to me in some of the nervousness of neuroses of childhood.

A word or two as regards cough: There is a sign which Jackson describes as diagnostic of foreign body in the lung, it is termed by him "the asthmatic wheeze." A child with a foreign body in the lung will often be found to have a wheezing respiration which can be determined by placing the ear near the child's mouth. I call attention to that because foreign bodies in the bronchi in children are not so uncommon as one might be led to suppose. Unaccountable coughs, with or without expectoration and with absence of definite physical signs in the chest should lead one to investigate the possibility of a foreign body in the bronchi or lung. Roentgen-ray examination should be made to determine whether the foreign body can be seen. I want to say a further word or two about this feature: Unless the foreign body is denser than the overlying bone of the chest it is by no means certain that it is going to show under the x-ray, so that negative findings do not necessarily mean no foreign body is present. We know that even some of the harder substances like glass will not show under the x-ray. If the foreign body has progressed to the point where actual formation of lung abscess has occurred, a shadow will be noted and the remaining lung areas show compensatory emphysema.

J. Hunter Peak: Young children are more likely to have small foreign bodies in the trachea and bronchi and alimentary canal than any other class, due to the fact that all children are prone to put their play things into their mouths. I have seen several such cases as Dr. Hall has mentioned with foreign bodies in trachea, bronchi and sometimes lodged in esophagus. I have had two cases where small children have swallowed opened safety pins and because of the fact the pins were open it was necessary to do a gastrostomy for their removal.

I had one case that I thought was an appendiceal abscess there being every evidence of an acute intra-abdominal lesion. When the abdomen was opened I removed a hand full of buttons from an abscess. The child had swallowed them in play and they must have ulcerated through the gut about the ilio-cecal valve. The mother gave the history—"The child had swallowed the buttons some two weeks before" I saw her. The buttons removed and abscess cavity was drained and child recovered.

Physicians should warn parents to be careful about permitting children to play with small foreign bodies, as they are liable to swallow

them, such as safety pins, buttons, small coins, etc., as we know, not infrequently happens, some times with disastrous results.

Simrall Anderson: I agree with Dr. Ireland that rigidity of the abdominal muscles is less frequent in children than grown people in the presence of acute abdominal lesions. I also think that in children the blood count is not as reliable as it is in adults. I have seen in children appendicitis progress to perforation with a relatively low leucocyte count.

As to intestinal obstruction: The statement has been made that for every hour operative treatment is delayed the mortality rate increases one per cent. For example: if there is twenty-hours delay the mortality will be twenty per cent; thirty hours thirty per cent; seventy hours seventy per cent etc. I believe these patients do not die as the result of the surgery that is done, but it is from toxemia, the obstruction being relieved and the gut made poisonous.

It has long been my opinion that too many tonsils are being removed without proper indications. It must be borne in mind that there is an inevitable mortality no matter how trivial an operation may seem, and this should be taken into serious consideration always before doing any surgery.

Octavus Dulaney: Regardless of whether the patient is an adult or infant, the most important feature is to make an accurate diagnosis in each individual case. I cannot agree with Dr. Bruner's statement that all tonsils should be removed. I would modify this to read that all pathological tonsils should be removed. If the child has repeated attacks of acute tonsillitis, it may be advisable to remove the tonsils. The tonsils may be slightly hypertrophied without causing any symptoms. Under such circumstances tonsillectomy is not indicated.

If it can be shown that the tonsils are causing symptoms, it does not matter what the age of the child may be, or if the tonsils are pathological, tonsillectomy should be performed. I can see no reason for waiting until the child reaches a certain age before operating. If valid indications can be demonstrated tonsils and adenoids should be removed if the child is only four or five months of age. Whenever there is any uncertainty about the diagnosis of disease of the tonsil, especially in very young children, a competent pediatrician should be called in consultation. He will take into consideration the welfare of the child, and if he advises operation then it should be done.

In my opinion many tonsils have been removed unnecessarily; too many operations are being performed in our clinics; we are operating too promiscuously. We must have a valid in-

dication for tonsillectomy in every case before performing the operation. If the physical condition of the child permits, and pathology can be demonstrated to account for the symptoms present, then it becomes our duty to operate regardless of the age of the patient.

Whenever a child has fever ranging from 101 to 104 with chills or chilly sensations, with pain in one or both ears persisting for twenty-four to forty-eight hours, the diagnosis of middle ear disease is almost certain. The pain often subsides suddenly and the patient then begins to complain of deafness. In that type of case there usually develops a profound toxemia. In every case of this character prompt myringotomy should be performed and free drainage established. Usually nothing further will be required. I do not believe it is wise to wait with the expectation that the drum membrane will rupture spontaneously. The patient should be closely watched and proper treatment instituted at the right time to produce the best results.

A. L. Bass: I was glad to hear Dr. Barbour's statement that in the present era of increased activities in every direction we are giving children too much to do. Many children have no time for rest or recreation after school hours, they spend the remainder of the afternoon taking dancing lessons, music lessons, etc. There is entirely too much of this and it is little wonder that the child is exhausted and nervous when the day is over.

As to Dr. Wolfe's paper: In my opinion the tonsils really do the child some good during the first two or three years of life, and do not believe they should be removed except for valid reasons. The tonsils act as forts to prevent the invasion of germs. The child comes into the world practically free from germs, and the tonsils are of assistance in preventing infections for at least two or three years. After that time the tonsils become so changed in structure that they are practically useless so far as the prevention of germ invasion is concerned, and then it is worth while to get rid of them. Unless it is absolutely necessary because of existing pathology, I seldom perform tonsillectomy until the child is three or four years old.

In closing I wish to report briefly two cases. Just before leaving town recently, a lady was referred to me for tonsillectomy on account of her heart being intermittent; missing about every fourth beat. Said she had a front tooth which the X-ray showed a little trouble with, but her dentist said it was all right. I told her I wanted to see the plate; then advised that

she have the tooth removed first, and I would remove the tonsils when I returned. She had the tooth extracted and when I came back in about two weeks she telephoned me; said her doctor told her that the tonsils did not need to come out now, that her heart was regular and she had gained six pounds. I told her I was glad to hear it, she may not have believed it, but I was.

The other case was a big raw boned young man, nineteen years of age, sent in by the coach at Manual Training School; saying that he was one of the best prospects for an athlete they had had for years. I asked him what was the matter, he said, "There isn't anything the matter with me." I asked him what he came to me for, said, "The coach sent him because he couldn't get his 'wind' good." Upon examination, I found he was getting very little air through his nose. He had congested inferior turbinates with hypertrophied posterior tips. Very bad tonsils, four plus and quite a mass of adenoid tissue. In a day or two I excised hypertrophied posterior tips of inferior turbinates, and removed adenoids in office; then in four days I sent him up to the hospital for tonsillectomy under local anesthesia. They called me from the laboratory and said he had four plus albumin and a blood pressure of 133 over 108. His clotting time was four minutes. My judgment was that his toxic nephritis was from his tonsils and that his albuminuria and high blood pressure were an indication for tonsillectomy rather than a contraindication. I removed his tonsils under local anesthesia and in about ten days I had his urine examined which showed a trace of albumin, and his blood pressure had dropped to 110 over 88.

W. F. Stucky (closing): One point mentioned by Dr. Barbour I would like to emphasize, and that is the effect of modern, high tension city life upon the already susceptible nervous system of the child. I see as many children living in the country as I do those living in the city, and am positive that we do not find the same number of nervous conditions, especially functional nervous manifestations, among rural children that we do among those living in the city. This is a point well taken by Dr. Barbour and should be borne in mind.

SYMPOSIUM ON CONJUNCTIVITIS, TWO CASES OF METASTATIC OPHTHALMIA

By ADOLPH O. PFINGST, Louisville.

Case 1. Male, age 62, with a good personal history—having to his knowledge never been sick—was taken with a cold in his head on February 21st, 1925. He sneezed repeatedly for several days and had a watery discharge from his nose. After several days the discharge from the right side became purulent and ceased on the left. A week after the onset of the rhinitis he had severe earachs on left side, followed in two days by a spontaneous discharge of pus from the ear. As the otorrhea was subsiding under irrigations—about ten days after initial nasal symptoms—his left eye became red and painful and the lids became swollen.

When I saw him he had suffered with his eye for two days. I found considerable swelling of the conjunctiva (chemosis), the lids were swollen and discolored, the eyeball slightly protruding. Rotation of the eyeball was limited in every direction and efforts at rotation were painful. The pupil was moderately wide, the interior dark and fundus invisible. Temperature 96 degrees F., pulse 73.

Diagnosis of metastatic suppurative choroiditis was made. Hot applications, bichloride wash and rest in bed ordered. The chemosis rapidly grew worse so that in three days it covered the cornea which could be seen only by lifting the swollen conjunctiva. A yellow reflex could be seen in the pupil. The pus gradually came forward and could be seen in the anterior chamber and the eyeball became very much enlarged and exophthalmic. Strangely there was not much pain and he had no elevation of temperature, 100 degrees F., being the maximum. He had no chill during the entire course of the abscess. X-ray examination showed right antrum of Highmore dark, other sinuses clear. On the 13th day a purulent discharge from the eye was visible and soon the chemosis began to subside, later revealing a point of the rupture in the sclera 1-4 inch outward of the corneal edge on the temporal side. He now has a blind shrunken eye.

Case 2. Female, 38 years old, was brought in from the mountains with a badly inflamed eye in which a diagnosis of acute glaucoma had been made. As the woman was a foreigner an accurate history could not be elicited. It seemed that her eye suddenly became inflamed and extremely painful a

week before I saw her. The information was given by the woman that she had missed two of her menstrual periods and that she had been flooding for three weeks.

Examination revealed a large blind right eye with marked proptosis and chemosis and tensely swollen lids. The eyeball was rigid and unable to follow the other eye in any direction. The interior of the eye could be seen through a large rigid pupil and showed a yellowish reflex. Temperature 103.50 F., pulse 100.

A diagnosis was made of suppurative choroiditis of metastatic origin, most probably from the uterus, and the case referred to Drs. J. A. Flexner and Wallace Frank for examination and treatment. I had their report that the patient had an incompleated abortion and that a curettement had been advised. With a temperature of 103.50 F., and symptoms of general sepsis, the patient was taken home by the husband (18 hours ride in a day coach) who refused treatment. She had some surgical attention at home and returned in five days, owing to severe pain in her eye. The eye was still large and the conjunctiva very much swollen. The anterior chamber was full of bloody pus and at a point corresponding to the corneo-scleral margin on the temporal side a fistulous opening was seen. From this a stringy mass of pus was removed with forceps. A rapid subsidence of the symptoms followed and the patient was allowed to return home in a week. At that time the eyeball had become quite small. Necessarily vision had been totally destroyed.

Metastatic infection of the eye terminating in abscess formation, or as it is commonly known, in panophthalmitis is an infrequent occurrence. Axenfeld, who has made an extensive experimental and clincial study of metastatic ophthalmia, came to the conclusion that a septic mass composed of broken down infected particles of tissues finds its way into the blood stream forming a septic embolus and that such embolus shows a predilection for the capillaries of the choroid coat of the eye, where it becomes arrested and causes a new suppurative process. This soon spreads to the vitreous humor and the other structures of the eye. The process is usually such a rapid one that the early stage, when the inflammation is limited to the retina and choroid coats, is seldom seen. Usually by the time these patients come under our observation there is marked swelling of the eyelids, edema of the conjunctive (chemosis), some bulging of the eye and retarded motion. The symptoms are the same as those of a panophthalmitis, due to exogenous causes

such as injuries or perforating ulcers. As the swelling increases the lids become so swollen and tense that they seem to be pressing on the enlarged, exophthalmic eye and crowding a mass of chemotic conjunctiva between the lids usually covering the entire cornea and hiding it from view. The symptoms are sometimes ushered in with a chill after which the temperature varies from 100 to 103 or 104 degrees F., but as a rule the temperature is not high.

Panophthalmitis of endogenous origin may at first glance be mistaken for an orbital cellulitis as the external symptoms, the swelling, chemosis, rigidity of eye, etc., are alike in both conditions. The differential diagnosis is readily made by examining the interior of the eye, which is clear in orbital cellulitis and opaque in panophthalmitis. Thrombophlebitis of the cavernous sinuses also simulates panophthalmitis but in this condition the interior of the eye is also clear, although a choked disc may be present. After ten to fourteen days of conservative treatment the abscess terminates in spontaneous rupture, usually at the corneo-scleral margin, after which the symptoms gradually subside and the case terminates in a shrunken blind eye with a yellow pupil (amaurotic cat's eye).

Probably half of these cases come as a complication of puerperal pyemia as it did in one of the cases reported tonight. Puerperal cases usually develop in the first few weeks of the disease, but may come on as late as the seventh week. Others complicate surgical pyemia which arises from injuries, surgery or local non-traumatic suppurative conditions. The latter may develop during the course of some of the infectious diseases, as typhoid, influenza, pneumonia, measles, scarlet fever, etc. They may come on spontaneously, the so-called cryptogenetic cases, which undoubtedly have their origin in a region of the body and which we must regard as of pyogenic origin. The infectious organism is usually the staphylococcus, the streptococcus or the pneumococcus.

Fortunately the septic embolus usually lodges in but one eye, although bilateral cases of metastatic ophthalmia have frequently been reported. I have seen one such case in a wealthy woman who had submitted to criminal abortion which was followed by pyemia with a septic arthritis and a metastatic ophthalmia in both eyes terminating in blindness.

In addition to the 100 percent loss of eyes in metastatic ophthalmia the prognosis as to life is bad. This is especially true of the bilateral cases in which, according to Axen-

feld, there is a mortality of 85 per cent. In unilateral cases offer a better prognosis, or a mortality of 20 per cent.

Death results from general pyemia. Suppurative endocarditis is a frequent complicating factor. It might be of interest to note that these cases seldom if ever cause sympathetic ophthalmia in the other eye.

In the treatment of this disease most oculists adhere to the conservative measures, as hot applications, rest in bed, attention to the intestinal functions, etc., and the use of sedatives if the pain becomes severe. Incision of the abscess through the sclera is permissible if the pain becomes unbearable, otherwise operation is not employed for fear that incision of the infiltrated cellular tissue might spread the infection to the meninges. For the same reason enucleation of the eyeball during the acute stage is by most oculists considered less conservative than a later enucleation after the acute symptoms have subsided. Some believe that this danger of early operation has been overestimated and advocate enucleation at any stage of the panophthalmitis.

CLASSIFICATION, CAUSES AND MORBID ANATOMY OF CONJUNCTIVITIS.*

By CHAS. BECK, Louisville.

The clinical classification of conjunctivitis still seems to be the best.

Classification:

- (I) Catarrhal (a) Acute. (b) Chronic.
- (c) Follicular.
 - (II) Gonorrhoeal,
 - (III) Neonatorum,
 - (IV) Granular,
 - (V) Epithelial,
 - (VI) Phlyctenular,
 - (VII) Vernal,
 - (VIII) Tubercular,
 - (IX) Traumatic and chemical,
 - (X) Petrificans.

The etiology in practically all of these is different. We see mixed infections. There are border-line cases. Neonatorum is usually gonorrhoeal but other germs are frequently associated.

The morbid anatomy differs widely often too, so it seems best to consider each variety separately and discuss them under these two heads.

Acute Catarrhal: Etiology:—As a rule bacteria, which gain entrance in one way or another to the conjunctival sac and multiply there, are the cause. Examination of the secretion for bacteria is sometimes negative. The source of the infecting organism varies.

*Read before the Jefferson County Medical Society.

The conjunctival sac is exposed almost continually not only to myriads of bacteria but also to irritating dust, smoke, and fumes. These bacteria are prevented from multiplying and accumulating in the conjunctival sac by the opening and shutting of the lids and the tears that wash them as fast as they accumulate into the tear sac and on into the nose. But for some reason sometimes these two agents are not sufficient to prevent inflammation. The local or general resistance of the individual to infection may be lowered. The bacteria may be of unusual virulence. Or there may be some slight injury to the conjunctiva that may furnish lodgment and pabulum. Symbiosis undoubtedly has an influence.

Acute catarrhal conjunctivitis is frequently concomitant with coryza; but, since it is impossible for infection to extend from the nose upward through the nasal duct and into the conjunctival sac when the mechanics of these structures are normal, the infective source of the two conditions must be the same of the conjunctivitis precede the coryza. When they are concomitant the bacteriology of the two conditions is practically identical.

The condition arises frequently by direct contagion, through handkerchiefs, towels, fingers, flies, etc. Sneezing sprays the atmosphere with myriads of bacteria that may find lodgment in a neighbor's conjunctival sac.

The bacteriology varies greatly with different epidemics and localities. One Chicago observer claims that practically all are pneumococci. The Koch-Weeks bacillus is frequent in New York. Fuchs states that pneumococcus occurs in small children, rarely in adults. The Morax-Axenfeld diplobacillus, the Koch-Weeks bacillus, the pneumococcus, the streptococcus, the influenza bacillus, the meningococcus, the micrococcus catarrhalis, the staphylococcus, the colon bacillus, the hay bacillus, the pneumo-bacillus and some other are accused.

The acute catarrhal conjunctivitis found in the exanthemata especially measles is probably due to a poisonous principle circulating in the blood.

Morbid anatomy: In the lighter forms, the ones most frequently seen in this locality, the palpebral conjunctiva, the retrotarsal fold and the plica semilunaris, are mostly affected. The conjunctiva is a vivid red and relaxed but the separate blood vessels can be distinguished though they are much engorged. The surface is smooth.

In the severe forms the bulbar conjunctiva is also involved. The redness and swelling are greater and more extensive. Moderate edema of the lids is often present. Small

hemorrhages into the conjunctiva occur not infrequently.

There is increased conjunctival secretion which appears as flakes of mucus suspended in lachrymal fluid. This secretion dries on the edges of the lids at night and glues them together. The integument about the eye, especially near the canthi and on the lower lid, is occasionally involved in the inflammation. In such cases fissures near the outer canthus are often seen.

Chronic catarrhal: Etiology: Acute catarrhal conjunctivitis which has been neglected or failed to yield to treatment. Bad air, smoke, dust, heat, loss of sleep, alcoholism, eye strain, ingrowing cilia, blephoritis, dacrocystitis, etc.

In many cases of chronic catarrhal conjunctivitis a close search of the scanty secretion will reveal the Morax-Axenfeld diplobacillus. While this bug may produce an acute catarrh it more frequently causes an inflammation which is chronic from the onset.

Morbid Anatomy: There is a moderate degree of redness mostly of the palpebral conjunctiva. There is no swelling and the surface is smooth, except in the old cases when the conjunctiva is thickened and velvety. The secretion is scanty and noticed only by the morning gluing of the lids. A whitish seum is often seen at the canthi. Here excoriations of the skin frequently occur.

Follicular. Etiology: Here we are still in ignorance. Unhygienic surroundings and vitiated air have been blamed, but Stephenson has shown that it occurs as frequently among the children of the rich as among the poor and among the children of farmers who have no lack of fresh air and sunlight. It is essentially a disease of childhood and adolescence being rarely seen after the twentieth year.

Morbid anatomy: There are granules which are larger and more numerous on the lower lid than the upper. If numerous they occur in rows. The granules are lymphoid tissue usually about 1 m. m. in diameter. They are reddish or yellowish in color. They cause no complications, little inconvenience, and no sequelae.

Gonorrheal: Etiology: The gonococcus. Fortunately the gonococcus is possessed of very little resistance. A short exposure to cold, heat, light, or air, long enough to dry, terminates its existence as a living organism. Hence gonorrheal conjunctivitis is transmitted by direct contagion. Fingers, towels, etc., before the infective discharge becomes dry are the usual means of transference to the conjunctival sac.

There are cases in which there is a conjunctivitis of a milder type found in individuals suffering from genital gonorrhea. This is a metastatic gonorrheal conjunctivitis and arises in the same way as a gonorrheal arthritis or iritis. It appears as a severe catarrhal conjunctivitis. The secretion is not very profuse or purulent and gonococci are seldom found in the secretion. It is said to be ten or twelve times as frequent as the non-metastatic form.

Morbid anatomy: The incubation period varies with the virulence and intensity of the organisms from a few hours to three days. The lids become red, hot and edematous. The swelling is so intense that the patient soon can no longer open the eyes and the surgeon often has trouble in separating the lids far enough to see the cornea. The conjunctiva is intensely red and greatly swollen. The conjunctiva is uneven in surface, granular and tense from the abundant cellular infiltration. The secretion is abundant and resembles meat juice. It is serum colored red with blood and flakes of pus float in it. This is the stage of infiltration.

In the stage of pyorrhea, the second stage, the swelling of the lids gradually diminishes and the tense infiltration of the conjunctiva slowly subsides. Pus begins to pour from the palpebral fissure.

The third stage fortunately does not always follow. It is the stage of chronic blepharitis. The lids are no longer swollen. The conjunctiva is reddened and thickened especially upon the tarsus, where its surface looks uneven, granular and velvety. The retrotarsal fold is still swollen. The bulbar conjunctiva is the least changed remaining only hyperaemic. When this stage is over there remains slight but permanent conjunctival cicatrices.

Neonatorum: These are inflammations of the conjunctiva occurring in the newborn. **Etiology:** Most of the cases, especially the severe ones, are caused by the gonococcus. The infection usually occurs during parturition, and on the second or third day the symptoms begin. Other organisms, as the pneumococcus, colon bacillus, etc., and a filterable virus producing cell inclusions similar to those found in trachoma, produce a milder blepharitis.

Morbid anatomy: Is the same as in adult gonorrheal conjunctivitis only less severe. There is much less involvement of the bulbar conjunctiva and much less cicatricial tissue.

Granular: **Etiology:** Fuchs states that trachoma originates exclusively in infection proceeding from another eye affected with trachoma. Only transfer of the secretion is ef-

fective. Contagion through the atmosphere seems not to occur. The infective agent has as yet not been described and generally accepted. Race seems to have some influence. In many countries the Jews are special sufferers. Negroes seem largely exempt. It is most frequent in Arabia, Palestine and Egypt.

Morbid anatomy: The disease is almost always bilateral. Eyes are less widely open, partly because of photophobia and partly because the heavy upper lid hangs lower down. The conjunctiva of the tarsus and the fold of transition is reddened and thickened and the surface is uneven. The changes are hypertrophic. There are two forms.

In the first form there is a development of so-called papillae. It is found exclusively in the tarsal conjunctiva and is always most pronounced on the upper lid. These papillae are newly formed elevations on the surface of the conjunctiva, which consequently appears velvety, or if the papillae are large, appears studded with coarse granules, and the conjunctiva is very much thickened.

In the second form we find trachoma granules, which are gray, translucent and rounded. They show through the most superficial layers of the conjunctiva. They are found mostly in the retro-tarsal folds.

Occasionally these two forms appear separately but usually they are found together in the same eye at the same time. The bulbar conjunctiva in light cases is unaltered, but in the severe ones there is a coarsely reticulate injection.

There is a purulent discharge which is more abundant in the fresh or severe cases. In the older cases and those which run a sluggish course there is little discharge.

The hypertrophy of the conjunctiva increases until it has reached a certain point, which is not the same in any two cases, then it disappears again leaving a cicatricial condition with contractions. These contractions produce sequelae more or less pronounced the discussion of which is not a part of this paper.

Diphtheritis: **Etiology:** The diphtheria bacillus. The predisposition to diphtheria diminishes with age. Consequently diphtheritic conjunctivitis is seen almost exclusively in children.

Morbid anatomy: Fuchs describes two forms, the superficial and deep.

In the superficial a grayish-white membrane is formed, which, while it adheres closely to the surface of the conjunctiva, can be removed with forceps. The conjunctiva when this is done is greatly reddened and

swollen and in some places bleeding, but there is no loss of substance. The membrane is a meshwork of fibrin with pus and conjunctival epithelial cells. This membrane is found most frequently on the tarsal conjunctiva but may cover the whole surface. Usually after a week or two the membrane gradually disappears, leaving an intense catarrhal inflammation which gets well without sequelae.

In the deep form the membrane forms within the tissues of the conjunctiva. The vessels are compressed by it. The mucous membrane is bloodless and becomes necrotic in spots. This process continues for from 5 to 10 days. Then the spots of diphtheritic infiltration begin gradually to disappear and the necrotic portions slough away. Secretion increases and becomes more purulent. Granulations appear covering the raw surfaces and later they are covered by epithelium. Contractions and sequelae occur.

Phlyetenuar: Etiology: It is seldom found under the age of one year and rarely after puberty. It occurs in adults only when the disease has persisted from childhood. It has its origin in the so-called scrofulous diathesis. Children of the poor who are undernourished, tubercular, with bad tonsils and adenoids and cervical adenitis are usually the ones attacked.

Morbid anatomy: A little red eminence of about the size of a millet seed develops at some point upon the limbus. At first it is conical, the apex being still covered by epithelium. But in a short time the epithelium separates and the apex of the cone softens into a small gray elevated ulcer. The ulcer deepens and widens until the whole cone is absorbed and the ulcer sinks to the level of the conjunctiva. It rapidly becomes clean and is quickly covered by epithelium, leaving no visible mark. The cone forms the apex of a triangle of conjunctival hyperemia. All the rest of the conjunctiva is normal. There are usually a number of these cones and accompanying triangles in each case. The fewer they are the larger they grow.

Vernal: Etiology: It is seen but seldom but mostly in the male during boyhood and youth. It is usually bilateral. It returns annually for three or four years or longer, even ten or twenty years, but finally disappears without leaving any marked trace. Beyond this we know nothing of the cause.

Morbid anatomy: The conjunctiva of the tarsus is covered with papillae that are broad and flattened, looking like cobble stones. Over these is a delicate bluish-white film. Growths, which are brownish, uneven and hard, also arise from the outer and inner side of the cornea. These extend for a short

distance into the cornea but further into the conjunctiva. These nodules never ulcerate. They last for years with little if any modification as to shape or size.

Tubercular: Etiology: The tubercle bacillus. It may be primary. It has been proved that the tubercle bacillus cannot attack the conjunctiva unless there is a break in its continuity. So in primary cases it probably gains entrance to the conjunctival sac on some foreign body. In secondary cases the patient probably infects his own conjunctiva by transference of the infective material on fingers. Hematogenous infection occurs.

Morbid anatomy: Conjunctival tuberculosis usually appears as ulcers, which are for the most part situated in the tarsal conjunctiva. The unverted lid looks thickened. Eversion discloses the ulcer, which is either covered by grayish-red granulations or has a yellowish-red, lardaceous-looking base. Near small gray nodules are often found. The ulcer is sluggish, spreads slowly and shows no tendency to heal. It may penetrate the lid and extend over the whole conjunctiva even involving the cornea. It is usually unilateral. There is a purulent secretion which varies in amount with the size of the ulcer.

Traumatic and chemical: Etiology: Foreign bodies, burns from acids, alkalies, hot water, steam, hot ashes, exploding powder, flames, hot metal, etc., cause a conjunctivitis which is of itself of short duration. Infection speedily occurs in most instances where resolution does not take place promptly. The various organisms found in acute catarrhal conjunctivitis rapidly convert the condition into an acute catarrhal conjunctivitis.

Morbid anatomy. Varies with the kind and amount of trauma, otherwise the morbid anatomy is the same as in acute catarrhal conjunctivitis.

Petrificans: Etiology: Only 8 cases have been reported. Bacillus xerosis has been blamed.

Morbid anatomy. There is an inflammatory swelling in which opaque white spots are seen. These spots are lime in organic, crystallizable combination. They increase in size and coalesce, forming a mass as hard as stone. New foci will appear while others are healing. The condition lasts for years. The smaller foci may be absorbed, but the larger ones leave shriveled thickened spots in the conjunctiva.

THE SYMPTOMS AND PROGNOSIS OF CONJUNCTIVITIS.*

By WALTER DEAN, Louisville.

Conjunctivitis of various forms is generally considered to be a purely local disease, confined to the organ of sight, and causing no constitutional derangements and no mortality.

On the contrary, Stephenson says of diphtheria conjunctivitis, which is so rare in this country, but common in the South of France and the North of Germany and occasional in England, "Fever, alimentary derangements and nervous phenomena are usual constitutional disturbances and the disease may be followed by loss of knee jerk and paresis of various parts of the body. Albumin may be present in the urine and occasionally diphtheritic conjunctivitis proves to be fatal."

Fuchs says "The general condition of the little patients is very much disturbed. They have high fever and are greatly prostrated. Weakly children not infrequently succumb to the severity of this disease. The prognosis, therefore, in the severe cases is very serious not only as regards the eye but also with respect to life itself."

As a focus of infection, the eye occasionally plays a part. DeSchweinitz says that anthritis, endocarditis and septicemia are sometimes complications of gonorrheal conjunctivitis and that rhinitis, infection of the lacrimal gland, meningitis and endocarditis have been reported as complications of ophthalmia neonatorum.

Death or general morbidity, while a recognized possibility, is with us a medical rarity. Our greatest practical concern is to save the cornea. If the cornea can be left intact, conjunctivitis at its worst can only cause discomfort.

Beginning with acute catarrhal conjunctivitis we find objectively that the lids are slightly swollen, the conjunctiva of lids injected and smooth, flakes of mucus swimming in increased lacrymal secretion. Sometimes small hemorrhages are produced by the rupture of small vessels. The subjective symptoms consist of photophobia and of itching and burning of the eyes. A very troublesome sensation frequently present is that of a foreign body in the eye caused by flakes and filaments of tough mucus in the conjunctival sac. If such filaments lie upon the cornea they produce disturbance of sight. It is a characteristic feature of catarrh that its disagreeable symptoms are least marked in the morning and gradually increase until they reach

their highest pitch in the evening. The prognosis is favorable except in severe infections when the so-called catarrhal ulcers form around the corneal margin. Most cases get well in one or two weeks. A few lapse into chronic catarrhal conjunctivitis.

In chronic catarrhal conjunctivitis the conjunctiva of the lids is red and velvety, the secretion is but slightly altered and slightly increased. Sometimes it is decreased in amount. The skin at the outer angle of the lids is sometimes excoriated. The lids itch, burn, smart and feel dry as though a foreign body were imbedded in the upper lid. Close work is difficult as the eyes soon tire and feel sleepy and close. Symptoms are again worse at night.

Fuchs makes this interesting comment "We see the conjunctiva quite intensely reddened in many people without their complaining in the least; while in others who do nothing but annoy the physician with their expressions of discomfort, there are often scarcely any changes perceptible in the conjunctiva." The prognosis is good as regards sight as ulcers are infrequent. In elderly people the so-called senile catarrh is not infrequent. Among its most frequent complications is inflammation of the edges of lids due to excessive tearing, eczema follows and pulls the lid downward and away from the eye.

Follicular conjunctivitis is a disease of children of the school age. It is often confused with trachoma on account of the presence of follicles. The objective symptom of follicles is often the only symptom present. Fuchs says "In many school children the disease exists in a perfectly latent form, as in spite of there being a considerable number of follicles, the conjunctiva is not reddened and causes no symptoms of any kind, so that the trouble is discovered only by medical examination. The follicles often persist for years. If an acute catarrhal conjunctivitis supervenes, the condition is more obstinate to cure than a catarrhal ophthalmia uncomplicated by follicles."

The prognosis is altogether good as the disease leads to no complications and leaves no permanent changes whatever, in this being opposed to trachoma which it otherwise somewhat resembles.

Our most hopelessly chronic conjunctivitis is trachoma. The patients complain of sensitiveness to light, of lacrymation, of sticking together of the lids, of pain and of visual disturbances. The eyes are partially closed, partly on account of photophobia, partly because the lid droops. The lid droops because

*Read before the Jefferson County Medical Society.

it is heavy, thick and swollen and probably because there is a paralysis of the tarsal muscle. The mucous membrane of the lids is hypertrophied showing either papillae or trachoma granules or both. In recent cases and in exacerbations there is a purulent secretion. In older cases the secretion is scant. As the condition progresses hypertrophy gives way to atrophy and the cicatricial stage is reached. In this way the trachoma is cured, but the lids and sometimes the cornea are left wrecked.

The prognosis is, of course, bad. Sight is usually markedly decreased by pannus and ulcerations, both leading to opacity of the cornea. Distortion of the lids with turning in of the eye lashes leads to endless discomfort and pain. We must remember that in a small percentage of cases the disease has been well established a long time before there are any subjective symptoms, and rarely we find a case having the characteristic scars of trachoma without the patient remembering that he ever had any trouble with his eyes. To one of these, we will find many blind and half blind patients. Trachoma is essentially a chronic disease. In no stage can it be dismissed as cured in any true sense.

Ophthalmia neonatorum is a group term embracing the various purulent inflammations of the conjunctiva in the new-born. They do not constitute an etiological unit, being produced by a variety of morbid germs. The purulent discharge usually shows the second or third, rarely the fourth or fifth day. Both eyes are usually involved. The lids are swollen, but soft and the cornea can be easily seen. Corneal ulcers are not so frequent as in gonorrheal conjunctivitis of adults. Therefore, the prognosis is fair or grave depending on early and proper treatment and the etiologic organism. If there is a hard wall of conjunctival swelling around the cornea, we know that the organism is virulent, that the cornea will suffer from lack of nutrition due to poor supply of lymph, and that the pus will macerate the corneal epithelium and that an ulcer will probably develop. If an ulcer develops we will probably see the cornea perforate later with or without destruction of the eye. Central ulcers which do not perforate make scars over the pupil and these, of course, reduce vision.

Gonorrheal conjunctivitis has an incubation period of from 12 hours to 3 days. The symptoms are similar to those of ophthalmia neonatorum except they are exaggerated. The lids are often swollen to such an extent that the physician has difficulty in opening them

far enough to inspect the cornea. There is great cellular infiltration of the palpebral and bulbar conjunctiva. A raised wall of edematous conjunctiva is seen around the cornea. The initial secretion is like meat-juice. The preauricular gland is swollen, the patient has fever, is sick and in pain. Succeeding this stage of infiltration, pus proceeds to flow copiously and the infiltration begins to subside. This purulent stage last 4 to 6 weeks when the condition subsides or proceeds to chronic blennorrhea, which lasts a few weeks longer. After the violent inflammation has subsided the conjunctiva may return to normal or there may be slight cicatrices of the extra corneal conjunctiva. They are of no consequence. The prognosis is always grave because the cornea may be lost by an annular abscess, or the cornea may perforate leading to panophthalmitis, or cicatrices with incarceration of the iris or dense opacity over the pupil.

In phlyctenular conjunctivitis photophobia is marked when the cornea is involved, slight in conjunctival cases. If a corneal ulcer is present, there is considerable spasm of the lids, and the child hides under the bedclothes and refuses to be moved. There may be one or more phlyctens. The intervening conjunctiva is normal. There is no infection primarily and no discharge. The disease is due to a dyscrasia, the lesion is a tiny accumulation of leucocytes. Softening begins at the apex and liquefaction takes place. Then infection occurs, which is only of consequence if the ulcer is of the cornea.

Clinical Significance of Insulin.—Falta finds that the discovery of insulin has not changed the views on the pathogenesis of diabetes. Many divergences of opinion are due to overlooking the varying carbohydrate content of the organism. He is strictly opposed to the theory of the fatty acid-glucose ratio. The results of Petren's diet demonstrate the possibility of avoiding acidosis from a high fat diet by restriction of the protein intake. He believes that the proteins provoke formation of acetone bodies from fat in carbohydrate deficiency. He found it advantageous to divide large insulin doses into four parts—the last to be given before midnight. He was always opposed to artificial abortion in diabetes because he saw good results with a rational diet. Insulin makes such indications entirely superfluous. Insulin lowers the blood sugar more than diet alone, and procures a better rest for the pancreas.

OPHTHALMIA NEONATORUM AND VERNAL CONJUNCTIVITIS.*

By JOSEPH HEITZER, Louisville.

In discussing ophthalmia neonatorum in this symposium of conjunctival disease, I considered that a review of some of the newer pathological work would be more interesting and instructive than elaborating on the clinical symptomatology which is already well known to you.

The skin surface of the body affords a habitat for many bacteria which grow on the dead epithelial cells and exercise a non-pathogenic role. These bacteria are called saprophytes.

Bacteria that grow and thrive only on living cells are referred to as parasites, and when associated with living cells of the body, play a pathogenic role. The mucous membranes of the body differ from the epidermis in that their epithelial cell layers are fewer and are composed wholly of living cells even in the most superficial layer.

This difference has an important bearing in the manner of growth and the topographic peculiarities of micro-organisms in their relation to disease of the conjunctiva. The investigations of K. Lindner of Vienna have brought to our attention the role played by the epithelial cell in conjunctival infections and changed our methods of diagnosis, in that we no longer obtain smears from conjunctival secretions but place dependence upon scrapings of the bulbar and palpebral conjunctiva. He has also developed staining methods which assist materially in identifying the parasitic micro-organisms and distinguishing their relationship to the epithelial cells. The stains employed are the standard Giemsa and the Lindner contrast Giemsa stain. With the latter only the bacteria and inclusions take the blue stain, while the nuclei of the epithelial cells, lymphocytes and leucocytes do not. Both dry and wet fixation of specimens is used.

• Microscopic examination of smears from the conjunctival secretion made immediately after a definite history of ocular inoculation with a rheal discharge will generally show gonococci. Examinations repeated few hours later will show no gonococci, nor will there be any clinical evidence of inflammation. At the end of twenty-four hours one or more small areas of conjunctiva, especially in the bulbar region, will appear slightly inflamed, but still no gonococci will be found in smears from the conjunctival secretion. If scrapings of the superficial epithelial cells

are made from an area of the bulbar conjunctiva showing evidence of beginning inflammation and are stained with Lindner's contrast stain, the surface of a few epithelial cells will be found partly covered with a turf-like growth of gonococci.

In another twelve or twenty-four hours the inflammation has involved most of the bulbar conjunctiva and shows extension toward the cul-de-sacs and palpebral conjunctiva. Smears of the conjunctival secretion made at this time show generally a few gonococci but few or no pus cells. It is about this time, at the end of the second or beginning of the third day, that the patient begins to notice the inflammation. By the end of the third or fourth day there has developed a marked chemosis of the bulbar conjunctiva, numerous fine subconjunctival hemorrhages and some edema of the lids. The serous discharge is now profuse and contains some pus cells. Smears made from the secretion show gonococci in small numbers, but insignificant in proportion to the great numbers seen in epithelial scrapings.

The gonococci penetrate the superficial epithelial layer at the cell borders and begin to proliferate on the posterior surface of the superficial cells from the third to fifth day. As the intensity of the infection increases the protoplasmic cement substance connecting the cells and the superficial layer with the layers beneath dissolves. As soon as the intercellular connections are broken the exudate of serum and pus cells rapidly increases, but in spite of this stream of fluid the gonococci continue to grow inward. In all instances the gonococci are firmly attached as parasites to the walls of the epithelial cells. Epithelial cells are rapidly regenerated and a whole new conjunctiva may develop in twenty-four to forty-eight hours which is often twice as thick as normal.

At the end of the first week phagocytosis of gonococci by the epithelial cells of conjunctiva begins and may last a week in the adult and several weeks in the newborn. This phagocytosis of gonococci by the epithelial cells is one of the most important defensive processes of the conjunctiva against bacterial infection of all kinds.

Bacteria play the role of parasites when located on the surface of the epithelial cells and appear to grow rapidly, but when the germs are phagocytated by the epithelial cell they are quickly killed without affecting the epithelial cell. Phagocytation by epithelial cells begins at the time that bacteria reach the second or third layers of epithelium and thus acts as a last line of defense against in-

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vasion. This phenomenon is made use of in parenteral milk injection in treatment. Following milk injection a complete exfoliation of all conjunctival layers occurs generally in twelve hours. Twenty-four hours later a full germinative renewal of cells takes place, and in two days the conjunctiva may be twice as thick as normal.

The cornea is more resistive than the conjunctiva and it can be covered with bacteria highly pathogenic to the conjunctiva without producing any clinical symptoms whatever. One is thus justified in concluding that when corneal ulceration occurs it is produced by an injury to the corneal epithelium. Phagocytosis of bacteria by corneal epithelium has not been observed, this protective mechanism being confined to the conjunctival epithelium.

I have tried to convey to you the importance of making epithelial scrapings instead of conjunctival secretion smears as an advance in the diagnosis of gonorrheal infection of the conjunctiva, and the role played by the conjunctival epithelium as an important defensive mechanism.

Lindner also found that a pregnant mother whose vaginal discharge contained gonococci, and in whose vaginal scrapings epithelial cell inclusions were also found, would not transmit the gonococcal infection to her child if the Crede method of prevention was used, but that the child would always develop an inclusion blennorrhea in spite of silver nitrate instillation. This would answer all those who have tried to prove that inclusion bodies are merely intracellular nests of growing bacilli in their transitional forms, especially the hemoglobinophilic bacilli and the gonococci.

In regard to treatment: the method employed at the Cook County Hospital and instituted by Dr. George F. Suker is so far superior to any known by me that I will give it in detail.

Upon admission the baby is thoroughly bathed, scrubbed and cleaned. The baby is placed in a trough-board with head lower than body and just hanging over the edge of the trough. Head turned so that lower eye can be treated first. With retractors (usually strabismus hooks) gently inserted, both upper and lower lids are lifted from the globe. Two nurses are employed for this. With lids in above position, each eye is copiously flooded with a cold normal saline solution. Every nook of the cul-de-sac is reached by the tip of the irrigator.—usually a pint to a quart per eye. Irrigation is repeated every hour in severe cases for first twenty-four hours, then less often as condition warrants. Between ir-

rigations the nurse wipes the eyes free from discharge with pledgets of cotton dipped in bichloride of mercury (1-2000) as often as warranted. Maximum feeding condition is maintained. General bath—twice daily—in an alkaline water. Hands are fixed, i. e., baby wrapped like a papoose and kept so until discharge has ceased or become negative. Plenty of fresh air and sunlight. No silver nitrate or other medicament used unless the conjunctiva, especially upper, is velvety and congested; then folds are stretched and a five per cent silver nitrate is applied with extreme caution with applicator; after a minute's exposure irrigation with normal saline as above. Silver nitrate is only applied once in forty-eight to seventy-two hours. No atropin is used unless indicated by corneal ulceration or iritis. If mother nurses baby then it is done under observation of nurse. A sterile sheet with a hole for nipple is used, and mother wears gloves, baby wrapped in sheet; after nursing remove. All dressings or cotton used are in connection with bichloride of mercury. Topical applications are only made when indications arise.

Since parenteral milk injection has come into use each baby upon entering, after cleansed as outlined, is given 2 to 3 c. c. of whole milk boiled three minutes. Temperature taken every two hours thereafter. If no elevation at end of twenty-four hours, then a second injection of 4 c. c. is given. Should the temperature rise then no more injections until temperature has been normal about thirty-six hours. Usually two or three injections are given.

Under the above regime all cases, either single or combined, are controlled within twenty-four to forty-eight hours. If baby is admitted without corneal complications, it is dismissed with two clear corneae. There must be three consecutive negative smears within a week before baby is dismissed, and must report once a week thereafter for a month. During this time the eyes are irrigated two or three times daily with a saline solution. In cases of corneal perforations a conjunctival flap is immediately made—during any stage of the disease. Optical iridectomies are made as early as possible when indicated. This is an important suggestion.

Vernal conjunctivitis is a rare disease and one of the most distinctive and most strange in the entire range of pathology. It seems to be about the only disease affecting the body, with the exception of malaria, which is entirely dependent upon heat. The persistent and regular return of the symptoms with the advent of warm weather is the most characteristic of the clinical manifesta-

tions of the disease. While heat is the immediate exciting cause, it cannot be the sole factor. The disease begins between the sixth and twentieth years of life and has an average duration of four to six years. It shows a predisposition to affect the male.

Vernal conjunctivitis is strictly a local disease, its typical alterations involving the palpebral or pericorneal conjunctiva or both. It may be a significant fact that these are the portions of the conjunctival sac where the conjunctiva is firmly attached to its base.

The diagnosis is dependent largely on a regularly recurring, rather localized and characteristic congestion of the ocular conjunctiva with itching and photophobia. The inner surface of the lid presents a general redness with enlargement of the papillae. In typical cases a bluish milky surface reflex is present, this being due to a thin layer of hyaline degeneration extending uniformly throughout the conjunctiva.

In some cases the ocular conjunctiva may appear normal. In the typical pericorneal type plicated thickening of the epithelium occurs at the limbus. In the palpebral form the epithelial layer is greatly thickened and large flattened masses appear on the tarsal portion of the upper lid producing a pavement-stone effect. Eosinophile lymphocytes are frequently found in the conjunctival secretion.

The most important accepted therapeutic measures include the use of fibrolysin applied locally and preceded by one per cent holocain; properly applied use of the roentgen-ray and radium. Radium appears more popular than the roentgen-ray. When all measures fail a sojourn in a cool climate will relieve the symptoms.

Bacteriophage for Typhoid.—The bacteriophage employed by Smith in the treatment of seven cases of typhoid was isolated from the feces of a normal person who never had an intestinal infection. It was obtained by the technique devised by d'Herelle. In five cases there occurred an immediate lysis after the administration of bacteriophage. In the two remaining cases, in which the blood culture showed the presence of *Bacillus typhosus*, the bacteriophage had apparently no effect in modifying the course of the disease. The strains of *B. typhosus* obtained from the blood, from the urine, and from the feces of the various patients were equally susceptible to the bacteriophage in vitro.

CORNEAL COMPLICATIONS.*

By GAYLORD C. HALL, Louisville.

Ulceration of the cornea is probably the most frequent and unquestionably the most serious of the complications of conjunctivitis. Its advent is usually accompanied by definite and well marked symptoms, chief of which are increase of the pain, photophobia and lachrymation.

Physical signs manifest are contraction of the pupil and change in the character of the injection.

Considering these signs and symptoms more in detail we find in uncomplicated cases of conjunctivitis a gritty feeling in the eyes with heaviness of the lids and a sensation as of a foreign body, either from the roughness of the lids or the actual presence of particles of mucus or pus between the lids and the eye-ball. There may be swelling of the lids accompanied by chemosis, a swelling of the ocular conjunctiva due to the intensity of the inflammation.

The injection is conjunctival in character, that is the intensity is most marked in the palpebral portions and in the cul-de-sacs, gradually diminishing in intensity over the bulbar conjunctiva as the corneal margin is approached.

The color varies from a faint pink to an intense beefy red, dependent upon the intensity of the inflammation.

In ordinary cases photophobia is not marked nor is lachrymation apart from the discharge an especial feature. The pupil is usually moderately contracted.

With the advent of corneal ulceration we have a different picture. The former discomfort and grittiness become a sharply positive pain, either intense in character requiring sedatives or a dull heavy ache radiating over the head on the affected side. Photophobia is markedly increased, the patient shunning the light, squeezing the lids tightly against efforts at inspection or burying the face in the pillows. Lachrymation is likewise increased out of proportion to the former discharge.

Contraction of the pupil is marked as a result of the irritation of the corneal nerves or due to the irritation or actual involvement of the iris in the inflammatory process. The character of the injection changes and becomes ciliary in type, that is while the conjunctival injection may retain its previous intensity the circumcorneal area, previously but little affected, now becomes involved assum-

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ing a brick-dust or even a violaceous hue.

The causes of ulceration are various; An injury coincident with the infection: A badly treated simple conjunctivitis due either to a mistaken diagnosis or to misdirected though well-intentioned efforts, usually on the part of the laity to cure a "cold in the eyes."

The violent intensity of the original inflammation in spite of early diagnosis and well directed treatment as seen in some cases of gonorrheal conjunctivitis;

Changes in the structure of the lids causing contractures or trichiasis as seen in old cases of trachoma;

Lowered general vitality and lack of resistance on the part of the patient as seen in poorly fed and badly nourished children, or in the terminal stages of wasting illnesses, either acute or chronic.

Finally, impaired nerve supply as seen after injury to the 5th nerve or 7th nerve.

The prognosis depends largely upon the intensity of the inflammation, and this is in turn dependent upon the character of the invading organism. The gonococcus is probably the worst offender while the pneumococcus is next.

An exact diagnosis of the type of infective agent is important; for instance, the usual organisms yield to silver preparations while the Morax-Axenfeld and allied organisms are controlled by zinc salts.

Early recognition of the ulcer with prompt and intelligent efforts directed to its relief materially effect the prognosis.

Last, but by no means least, the position of the ulcer on the cornea; a comparatively large peripheral ulcer may on healing impair the vision but slightly, while a very small central ulcer may on healing leave the vision seriously damaged.

This is of especial importance to all railroad employes and men in public service where a certain percentage of vision is required for them to retain their positions.

Such considerations should make us doubly vigilant in handling these cases and stresses their importance. One should be mindful of the responsibility involved and not dismiss these cases as trivial but feel assured he is capable of handling them or seek consultation early.

Treatment.

The limits of this paper will not permit the treatment of this condition to be stated in detail. In brief, the treatment consists of the care of the conjunctivitis plus the treatment of the corneal complication. Atropin should be used to put the iris at rest.

In cases where the ulceration is the re-

sult of inefficient or misdirected treatment the instillation of the silver salts, for instance argyrol 25 per cent, every three hours properly instilled with touching of the ulcer with 1 or 2 per cent nitrate of silver once daily should be effective.

In Morax-Axenfeld conjunctivitis, zinc sulphate solution 1-2 per cent instilled three times daily, touching the ulcerated area once daily with zinc chloride solution, 1-2 grains to the ounce of water is sufficient.

In pneumococcus infections numoquin hydrochlorat 2 per cent solution three times a day is efficacious as a rule, but if the ulcer shows a tendency to extend the Shahan thermophore should be used.

Phenol, tincture iodine, or strong nitrate of silver solutions may be applied directly to the ulcer to limit its spread and stimulate repair, proper precautions being of course taken to limit the action of the drug strictly to the area treated.

Gonorrheal ulceration of the cornea may tax to the utmost the resources of the surgeon. In addition to the measures cited canthotomy may be required to relieve the pressure from the swollen lids. Hot applications are also grateful to the patient. General supportive measures are, of course, to be instituted and every precaution taken to control the conjunctival disease. Care in applying the remedies that they may prove effective is not the least consideration.

In dealing with trachomatous ulcers the course to be adopted depends in part on the pathology present in the lids. If there is much shrinking of the lids causing entropion canthoplasty alone or combined with more extensive operative measures is indicated, particularly if trichiasis is present. Trichiasis can be temporarily controlled by epilation.

In the acute infections I have found the silver preparations followed by the yellow oxide of mercury ointment more effective than the more stimulating copper sulphate solutions.

Dionin in 5—10 per cent solution or even in substance is useful in stimulating repair and perhaps in clearing a cornea after the process has started to repair.

In all the cases proper diet, free water drinking, attention to the bowels, supportive measures where indicated, and sedatives if the pain becomes too severe, are in order.

TREATMENT OF CONJUNCTIVITIS.*

By A. L. BASS, Louisville.

Acute catarrhal conjunctivitis, or acute infective conjunctivitis, which is the title most usually applied to the infection caused by the Koch-Weeks bacillus, is easily recognized; should be treated by the local application of Agno3 1 to 2 per cent solution daily or every other day, in the office; at home warm normal saline compresses 10 to 20 minutes, followed by the instillation of a 10 to 20 per cent solution of argyrol, silvol, or neo-silvol three times per day.

Pneumococcus infection of the conjunctiva is treated satisfactorily with the treatment just outlined above, or the use of warm normal saline compresses for 10 minutes every two to four hours followed by the instillation of a 2 per cent optochin solution is very effective.

Where there is a redness at the angle of the conjunctiva and the inflammation is less severe, which is indicative of oMrax-Axenfeld bacillus presence, the use of warm normal saline compresses followed by the instillation of a 1-2 per cent Znso4 solution twice daily usually suffices.

Diphtheretic conjunctivitis is best treated by the administration of diphtheria antitoxin; local application of 1 to 2 per cent solution of Agno3 daily together with the warm saline compresses 10 to 20 minutes, followed by argyrol, silvol or neo-silvol three times per day. Personally I have had three cases of pseudo-diphtheria bacillus infection respond readily to the same treatment advised for diphtherietic conjunctivitis with the exception of the antitoxin.

When the acute stage has subsided, in the above mentioned types, the mild antiseptics are sufficient; such as argyrol, silvol, neo-silvol in from 10 to 20 per cent solution. For the sticky lids at night it is well to use some mild ointment, such as the Y. O. 1 per cent or the M. E. S., No. 3, on the lower lid, and have the patient rub gently for a few moments. This, as well as the antiseptic drops, is to be preceded by the warm saline compresses for five or ten minutes.

In chronic catarrhal conjunctivitis the treatment is to remove all factors which may pertain to the condition as much as possible, such as improving the general condition under which the patient lives; diet, cleanliness, etc. Correct refractive errors, if any. The medical treatment at first in Agno3 1 to 2 per cent solution locally, and the patient is to use warm saline applications at home, followed by astringent agents, such as Znso4

1-2 to 1 per cent solution, alum or tannin 1 per cent solution; argyrol, silvol, neo-silvol 10 to 20 per cent solution. The order in which the remedies are mentioned is their relative gradation as astringents from the strongest to the mildest. Ointments are of value, such as the copper citrate 5 per cent or the M. E. S. No. 3.

Folliculosis: if there are no inflammatory symptoms, little or no treatment is necessary. Znso4 1-2 per cent solution or the CuSo4 ointment 1-2 per cent may be indicated. If there be active inflammatory condition present, the local application of Agno3 1 to 2 per cent solution by the physician is indicated in conjunction with the use of the astringents at home. I have had more than one case of folliculosis subside after the removal of tonsils and adenoids. I firmly believe there is some relation between certain types of conjunctivitis and adenoids and tonsils.

Trachomatous conjunctivitis, treatment of which has a two-fold object; one to do away with the inflammatory complications and increased secretions; the other to prevent conjunctival hypertrophy. The two chief remedies are Agno3 and CuSo4. To stay the inflammation and increased secretion, Agno3 is used in 1 to 2 per cent solution or the actual stick. For the hypertrophied conjunctiva and where the inflammation and secretion is slight, CuSo4 is the remedy of choice. Operative treatment is indicated where the granulations are large and especially in the retrotarsal fold. The operation of choice is the expression operation as done by McMullen of the U. S. P. H. Service; which produces the least harm to the conjunctiva with the maximum of benefit.

Tuberculous conjunctivitis usually occurs in the young and affects one eye as a rule. Treatment consists in excising or cursetting the ulcer, and the local use of a 10 per cent iodoform ointment. The general health is very important.

In addition to our medical treatment of conjunctival affections we must not forget the general hygienic rules; such as having the patients keep the eye clean with warm saline flushings, avoid smoke, dust, "movies," and bad air in general, and advising them to pass their time in the open. They should refrain from using their eyes too much, especially in the evening by artificial light. As a prophylaxis against spreading the disease by contagious or infectious route, the patient must not use same towels, wash basins, etc., as other people. On the contrary, have patient use own towel, wash basin and

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the nurse, mother or any one administering treatment should use antiseptics on their hands before and after treatment.

Conjunctivitis as the result of injuries, such as foreign bodies and burns from caustics, is best treated according to the needs of the individual case and require experienced judgment in a great many instances; and the time allotted will not permit a full discussion by any means. As a general rule, remove the cause first. If it be due to a foreign body or any caustic substance if there is any present, try to prevent any infection if none has occurred and treat the condition in a conservative way, give nature a chance and it is surprising at times what she will do.

In conclusion, relative to treatment of conjunctivitis, I wish to pay reverence to the sovereign remedy of them all which is silver nitrate. It is our most important remedy in catarrhal conditions. Was first employed by St. Yves for inflammation of the conjunctiva in the 18th Century, but was in the last century that it became actively used. People had a natural dread of instilling so irritating a liquid as silver nitrate into the inflamed eye. Even in a sound eye the solution excites a violent irritation of the conjunctiva and it is possible to produce an artificial cataract by too frequent application of it. As a consequence you wonder where we get our benefit from its use? The delicate bluish-white film which covers the conjunctiva after application is due to the coagulation of the albumen of the cells in the upper layers of the epithelium and they become opaque and die. The escharotic process acts like an irritant which produces a hyperemia; this in turn induces a transudation under the eschar, so that the layer is loosened and finally cast off; and when this takes place, the bacteria found in the upper layer of the epithelium are thrown off with the eschar and so eliminated from the eye. In short, remedies for conjunctivitis may come and go, but the use of silver nitrate will go on forever.

DISCUSSION

Jesse H. Simpson: I have enjoyed the presentation of this symposium; it has been very interesting not only to specialists but general practitioners of medicine. The papers have covered the subject of conjunctivitis so thoroughly that there is little left for us to discuss.

There is one condition not mentioned by any of the essayists which occasionally occurs, and that is chemosis of the ocular conjunctiva. This is very startling when the first case is observed and may be the cause of considerable worry. It is due quite often to deep inflammation of the eyelid of thermal or chemical origin and soon subsides.

A feature which interests all of us was mentioned by Dr. Heitger, i. e., when smears are taken from the conjunctiva sometimes bacteria are not found, which leaves the observer in doubt as to whether the conjunctivitis is contagious or not. The history is often indicative. In nearly all cases, outside of ophthalmia neonatorum, it will be found that one eye is affected first, and the history will show that the other eye became infected a day or two later.

Another interesting condition not mentioned is where conjunctivitis may have associated with it glandular involvement. This is seen in severe cases of diphtheria and certain other infections of the conjunctiva. It occurs in Parinaud's conjunctivitis which is very rare. Personally I have seen two cases of this; also in chancre, tuberculosis and severe Koch-Weeks bacillus infection.

In regard to treatment: I think Dr. Heitger's point was well taken that in gonorrheal conjunctivitis there was sometimes too much treatment. The therapeutic pendulum has been gravitating for some time toward more irrigations and less medication.

As to corneal complications: Dr. Hall mentioned one of the most important features in connection with future visual impairment following corneal ulceration, and that is the location of the scar. Corneal complications are always serious, but fortunately they do not occur in every case of conjunctivitis.

I did not hear Dr. Bass mention bichloride of mercury. I think that is a splendid adjunct to the treatment of trachoma and follicular conjunctivitis.

Charles A. Lester: I feel like it would be rather presumptuous on my part to try and enter into a lengthy discussion of a subject that has been so well and thoroughly presented. There are a few things, however, that I think might be further emphasized.

Dr. Bass stated that it was well to put ointment on the lower lid and rub it. I think if medicated ointment is used and the lid gently massaged the effect is very much better than when put on the lid and left alone.

In my opinion the thermophore was not emphasized as it should be. My own experience has not been extensive, but where I have used this instrument rapid healing has occurred.

In the treatment of Morax-Axenfeld conjunctivitis my own idea is that the soziodolate of zinc is more satisfactory than any other form of zinc.

One of the simple things in the treatment of conjunctivitis not mentioned, but I presume taken for granted, is the use of dark glasses to exclude the light.

The papers were so thorough that there is little to be said, and I have merely mentioned some of the smaller items which may be of some importance.

J. Paul Keith: I wish to speak only of vernal conjunctivitis which is a very rare disease and to me a very typical one. Two years ago I first saw a child 9 years of age afflicted with this disease and had been given many forms of treatment without benefit. He was given three doses of radium applied for a short time with low filtration and seemingly made a complete recovery. Last year there was no recurrence of the disease. Another case was in a child seen last summer and four or five treatments with radium were given. This child was only four years old and had to be anesthetized for each treatment. Marked improvement was noted after the first two treatments and we hope the results will be as good as in the other case mentioned.

Claude T. Wolfe: This has been a most interesting symposium of conjunctivitis. There are two drugs we have at our disposal that are specifics in certain types of conjunctival inflammation. Zinc sulphate will destroy the Morax-Axenfeld bacillus and optochin will destroy the pneumococcus. The type of conjunctivitis that is caused by the Morax-Axenfeld bacillus is usually of the chronic type and is particularly manifested by the white secretion appearing in the canthi. Optochin must come in direct contact with a pneumococcus to destroy it, and this drug should not be condemned in the event a pneumococcus ulcer does not respond to its use. This type of ulcer usually has overhanging edges, and it may be difficult for the drug to reach the organisms. However, I am confident that it is a specific, which confidence is well borne out by experience.

As to the treatment of trachoma, I think we are generally agreed upon the course to pursue in its early stages. It is here that we find usually a variety of organisms and that some form of silver salts especially silver nitrate is of value. In its second stage we begin to notice some evidence of inflammation of the cornea with possibly scarring of the tarsal cartilage. Then of course our treatment changes. Unfortunately most of our cases are seen in the clinics, and when the patient is temporarily relieved, he feels that he is well and does not return until another complication presents itself. I feel that this type of case, especially occurring in a patient that is not dependable, that the removal of the tarsal cartilage offers us the best results. A number of years ago I had the pleasure of examining several hundred cases of suspected trachoma in Louisville and vicinity with members of the United States Public Health De-

partment. Many of the cases were diagnosed by these doctors as trachoma that I had looked upon as being follicular conjunctivitis. The removal of the tarsal cartilage was strongly advocated at that time, and the results that I have obtained by this operation have come up to the expectations in nearly every instance. This operation is not a difficult one, and, while formerly we employed the old Claiborne clamp to hold the eyelid and cartilage firmly, still this clamp would occasionally slip out of position and was not as satisfactory as it should have been. At a recent meeting of the Academy in Montreal I heard a paper in which it was advocated that a suture placed in the center and at the margin of the eyelid was used to draw the lid over a horn plate. This had the advantage of enabling you to place as much traction upon the lid as was necessary to enable you to dissect out the cartilage very handily.

The use of magnesium sulphate is regarded as most advantageous for home treatment. This may be used in a saturated solution if the patient does not object, and if so the strength can be reduced accordingly.

I agree with Dr. Heitger in the treatment of vernal conjunctivitis that radium offers us most. I have seen several cases in which radium had been used, and the results were very gratifying. I saw the case mentioned by Dr. Keith and must say that the results were phenomenal. To my knowledge, there has been no recurrence in the few cases in which I have seen radium used.

I have used the thermophore in a number of cases with excellent results. In a hypopyonkeratitis where we have rapid destruction of the corneal tissue and, as you know, excruciating pain the thermophore has caused the pain to subside and a noticeable healing of the ulcer within just a few hours. If the application is successful, the hypopyon will disappear within twenty-four or thirty-six hours. I feel that there is not the destruction of the cornea following that occurs when the actual cautery is used. I think that the thermophore or some modification is here to stay.

No one mentioned mercurophen in the treatment of conjunctivitis. This drug was called to my attention at a meeting several years ago in St. Louis by Dr. Zentmeyer. I think it originated in the Will's Eye Hospital in Philadelphia. Mercurophen has been rather extensively used in place of the silver salts and certainly has come up to expectations. It has been found effective as an antiseptic and has the additional advantage that it is not known by the laity. It is used in one to eight thousand solution. Of course it does not replace silver nitrate but has the advantage that it can be used at home by the

patient. I once heard Dr. Parker say that in these intractable types of conjunctivitis that would not respond to any of the antiseptics used and even showed no improvement after refraction that if the conjunctival sac were filled with yellow oxide of mercury then the eye gently massaged upon several occasions that he had obtained results that no other type of medication offers.

If a local anesthetic is necessary I believe Butyn is more advantageous than cocaine in many instances. It is not as toxic and has no effect upon the cornea.

W. T. Bruner: In the treatment of phlyctenular conjunctivitis I want to emphasize the importance of the fact that the general health of the individual should be looked into very carefully. This disease usually occurs in undernourished children who are often tubercular or have diseased tonsils and adenoids. Particular attention should be given to the nutrition of these children in order to improve their general physical condition.

In dealing with corneal ulcers, as mentioned by Dr. Hall, I want to emphasize one drug; there is usually a prompt response when it is used; there is no drug that acts better we seldom hear of it any more, yet I believe it is the best agent for use in cases of corneal ulceration—and that is iodoform. Fill the conjunctival sac with iodoform.

H. B. Scott: I regret that the gentlemen who was to have read a paper on psycho-neuroses complicating conjunctivitis failed to appear. I was particularly anxious to hear just what he would say about it. I could not understand just what part that would have to play in this condition; but after thinking the matter over I can see that it has a small part.

Psycho-neurosis consists of two types, viz., hysteria and psychasthenia. Psychasthenia is a condition in which we have morbid fears and doubts together with somatic delusions or delusions about different organs of the body. In some eye conditions, especially where the patient has an ulcer or perhaps gonorrheal ophthalmia, I can understand that he might develop psychasthenia or hysteria. We have seen some of these cases in which the patients developed mania on the subject. They actually had great fear that they were going to become blind. I do not believe there would be any reason for developing real fear or psychasthenia in conjunctivitis, yet the patient may have a certain amount of worry and perhaps some normal fear. He would be more likely to develop a mild neuroasthenia.

R. Alexander Bate: I would like to state that

Dr. William Campbell Posey's classical encyclopedic article was the one from which the headings were obtained for this symposium on conjunctivitis. In regard to psycho-neurosis: perhaps the specialist does not see that side of the situation as the general practitioner does.

Some of the gentlemen present may be old enough to remember Dr. A. G. Blincoe, of Bardstown, Kentucky, who in his day presented some very interesting discussions on "eye strain." Page 86, Vol. viii, Ky. S. M. J. He reported case of epilepsy that was benefitted, or at least there were fewer attacks, after the eye conditions were relieved. Of course complicating psychoneuroses in conjunctivitis arise from the eye strain. In this chronic case of epilepsy help was supposed to have been from relief of the eye disease.

I recall the case of a lady about sixty years of age in whom conjunctivitis had progressed to ulceration of the cornea. She was in a state of melancholia; was sure it was the beginning of her final dissolution. She was seen by three competent ophthalmologists, but the chronic eye condition continued for quite a while. Of course removal of the cause relieved her mental distress. It is interesting sometimes to observe the symptoms of neurasthenia that arise following conjunctivitis, particularly in the chronic type. Photophobia, lachrymation, etc., in the early stages are intense and may produce acute psychic symptoms that are very distressing. Cure of the conjunctivitis, of course, cures its sequelae.

I want to thank the gentlemen very much for their papers.

Chas. K. Beck (closing): I have nothing of importance to say in closing except to mention psycho-neurosis in connection with conjunctivitis: I am sorry Dr. Pirkey was not here as I would like to have heard his paper.

A patient came to see me some time ago with acute conjunctivitis of severe type. I treated him for several days but he did not seem to get any better. He was very much worried, but I did not know the source of his worry. He finally took me into his confidence and said that several years ago he had gonorrhea and wanted to know whether that had anything to do with his eye disease. I assured him that his attack of gonorrhea had nothing whatever to do with his present complaint. He was not satisfied, however, and went to the family physician who had treated him for venereal disease and was given assurance that his eye trouble had no connection with his former gonorrhea. He then returned to me in a happy state of mind and soon recovered. I merely mention this to show how these patients sometimes worry over things they do not

know and may continue to do so until they take their medical attendant into their confidence.

Gaylord C. Hall (closing): Someone mentioned optochin as a specific for a certain type of conjunctival infection. I want to call attention to the fact that this drug is now called numoquen hydro chloride and I would not think of dropping tincture of iodine into the conjunctival sac. If used in any case it should be with an applicator and to the involved area only.

Regarding subconjunctival injections of cyanide of mercury, that is a very drastic method of treatment. If those who advocate it will use the thermophore, just as good or better results will be obtained.

A. L. Bass (closing): As to the various mercury preparations that have been mentioned, including mereurophen 1-5000 solution, I would suggest to Dr. Wolfe when his patients got onto the use of mereurophen to try metaphen 1-5000 solution, put out by the Abbott Alkaloidal Company: that he will get just as good results.

With reference to Dr. Hall's paper on the treatment of corneal ulcer: There is one thing he omitted and that is the actual cautery. That is a very effective remedy when cautiously used. The thermophore has come to stay; but the actual cautery deserves being mentioned.

BOOK REVIEWS

DISEASES OF THE CHEST and the Principles of Physical Diagnosis, by George W. Norris, M. D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry R. M. Landis, M. D., Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph. D. M. D., Director of Laboratories of the Philadelphia General Hospital. Third Edition, Revised. 907 pages with 433 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$9.50 net.

The revision for the new edition of this successful work has been heavy, many sections having been entirely rewritten. A great deal of new matter has been added and that already included has been brought right down to date.

There is an increase of 63 pages over the former edition and this represents an increase in *text*—no additional illustrations have been added, although a number have been replaced with still more instructive ones.

Included in the new material are articles on shallow breathing, cyanosis, cyanosis in pneumonia, heart pain. The section on ef-

fort syndrome has been virtually rewritten, with the addition of a section on vagus pressure. The section on the electrocardiograph has been so thoroughly revised that it, too, is virtually new. There have been added sections on electrical axis of the heart and acute dilatation and terminal arrhythmias. The entire section covering symptoms, physical examination and differential diagnosis has been rewritten, with the inclusion of new matter on fat embolism and air embolism. There is a new section on arteriosclerosis and on thrombosis of the pulmonary artery. There is a new section on rupture of the heart, another on tuberculosis of the heart, another on tumors of the heart, another on coronary thrombosis covering several pages and including etiology, pathology, symptoms, physical examination and differential diagnosis. There are new sections on mycotic or bacterial aneurisms, aneurism in young children and adolescents and a section on diseases of the trachea. In the monograph on tuberculosis, a new section has been added on abortive tuberculosis, masked tuberculosis, and modes of death in pulmonary tuberculosis.

SURGICAL PATHOLOGY. By William Boyd, M. D., M. R. C. P. Ed., F. R. S. C, Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Octavo of 837 pages with 348 illustrations and 13 colored plates. Philadelphia and London: W. B. Saunders Company, 1925. Cloth \$10.00 net.

Perhaps the most distinguishing feature of this book is the consideration of pathology from the basis of observations made in the operating-room rather than those at the post-mortem. *It is pathology of the living.*

It is on the recognition of pathologic conditions in the incipient stage that Dr. Boyd particularly concentrates his attention. He does not give you a postmortem description and a photograph made at the autopsy and let it go at that. His pathology begins with and includes the first clinical sign.

Wherever a procedure is outlined so precisely that there can be no possibility of misunderstanding. The directions for the collection of material, for example, will enable you to make accurate, valuable deductions from your microscopic examinations, by showing you where and how error is introduced, and how to avoid it.

There are 349 illustrations and 13 color plates.

ABT'S PEDIATRICS. By 150 specialists. Edited by Isaac A. Abet, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totaling 8000 pages with 1500 illustrations, and separate Index Volume free. Now ready—Volume VI containing 736 pages with 127 illustrations, Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$10.00 per volume. Sold by Subscription.

This is the first really complete work on pediatrics in 35 years. There have been many epochal advances in that period. Diphtheria antitoxin was not known 35 years ago; the Schick test in diphtheria is of the last decade; the Dick test is a recent advancement; the vaccine treatment of pertussis has but recently come into pediatric therapy; milk infection, with its train of gastro-intestinal disorders; protein skin tests; the multitudinous causes of asthma in children, with specific treatments; acidosis and its management—all these and hundreds of other clinical advances are to be accredited to pediatric advancement, but nowhere until now had they been gathered together in one work and exhaustively presented.

OPERATIVE SURGERY. Covering The Operative Technic involved in the operations of general and special surgery. By Warren Stone Bickham, M. D., F. A. C. S. Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York. Former visiting Surgeon to Charity and to Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5400 pages with 6378 illustrations, mostly original and separate Desk Index Volume. Volume 4 containing 842 pages with 772 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by subscription only. Index Volume Free.

Bickham's *Operative Surgery* is now complete. The sixth volume and the separate desk index volume have been shipped to subscribers. The publication, *in ten months*, of this complete work of six volumes with its 5400 pages and 6378 illustrations, is an achievement in medical publishing.

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MANUAL OF PSYCHIATRY: For the Medical Student and General Practitioner. By Paul E. Bowers, M. D., Examiner in Lunacy, State of California; Lecturer in Neuropsychiatry, Post-Graduate Medical School of the University of California, Los Angeles. Octavo volume of 365 Pages. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$3.50 net.

There are chapters on the classification, causes, symptoms, traumatic and senile psychoses; psychoses with cerebral arteriosclerosis, general paresis; psychoses with cerebral syphilis, with brain and nervous diseases; psychoses due to alcohol, drugs and other exogenous toxins; psychoses with somatic disease; manic depressive psychoses; involutional melancholia, dementia praecox, paranoia; epileptic psychoses; the psychoneuroses and neuroses, psychoses with constitutional inferiority, and with mental deficiency; Binet-Simon scale for intelligence test, treatment and relationship of insanity to crime.

DISLOCATIONS AND JOINT-FRACTURES. By Frederic J. Cotton, M. D., Visiting Surgeon to the Boston City Hospital; Associate in Surgery, Harvard Medical School. Second Edition, Reset. 745 pages with 1393 illustrations from drawings by the author. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$10.00 net.

While this is called a new edition, it is, in fact, a new work. It has been virtually rewritten. It had to be—the developments in this field were so many and so important. Dr. Cotton's clinical and teaching experience has qualified him particularly well to write a practical book for the general practitioner as well as for the surgeon. It is a record of personal work—original in text and illustrations, because Dr. Cotton is himself the artist. A feature of great importance is the attention given *joint fractures*—a division frequently neglected or slighted in works of this kind.

DIFFERENTIAL DIAGNOSIS. Presented through an Analysis of 317 cases. By Richard C. Cabot, M. D. Professor of Medicine and Professor of Social Ethics at Harvard University, Volume 2—Third Edition, Revised. Octavo of 709 pages, 254 Illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$9.00 net.

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COUNTY SOCIETY REPORTS

Nelson: The regular meeting of the Nelson County Medical Society was held at Bardstown, September 23, 1925. Delegates were instructed to use their influence and to vote for the continuation of the Medical Defense. Twenty-two doctors were present. Dr. E. S. Smith, the new councilor, addressed the society with his usual genial and charming manner.

R. H. GREENWELL, Secretary.

Third District: The last meeting of the Third District Medical Society met with the Logan County Society at Russellville, Nov. 4th with Dr. Walter Byrne, Sr. in the chair, the president, Dr. Howard, being absent. There were thirty doctors present.

Dr. Belcher reported a case of Urethral Pro-lapse, which was discussed by a number of members, the conclusion that surgical treatment would doubtless be necessary to relieve the patient.

Dr. Brown reported a case of Acute Nephritis with diseased tonsils as the probable source of infection. This case was discussed by most of the members present.

Dr. D. Y. Keith, Louisville, read a paper on "Radiation Treatment of Cancer of the Breast" which was discussed by Drs. Gary, Woodard, Blackburn and Keith.

Luncheon was served by the Domestic Science Department of Logan College and was thoroughly enjoyed by the members present.

Dr. W. R. Burr, Auburn, read a paper on "Intravenous Medication", which was discussed by Drs. Boone and Bell.

Dr. R. E. Fort, Nashville, was on the program but was absent because of illness.

Dr. W. W. Durham, Hopkinsville, read a paper on "The General Practitioner and Insane Patients"

The Society adjourned to meet at Bowling Green in April 1926.

J. H. BLACKBURN, Secretary.

Following lunch at the Carrollton Hotel the Carroll Medical Society met at the County Court House, Sept. 18, with all the members, except one, present.

W. E. Gardner, our councilor, was present, and gave a very interesting talk.

William A. Jenkins, Louisville, read a paper on Arterial Hypertension. Dr. Allen Donaldson and Dr. W. B. Messink discussed this excellent paper.

Election of officers followed the meeting and were Dr. J. S. Brown, President, Dr. W. B. Messink, Vice President, Dr. J. M. Ryan, Secretary and Treasurer, and Dr. B. L. Holmes, Delegate to the State Meeting.

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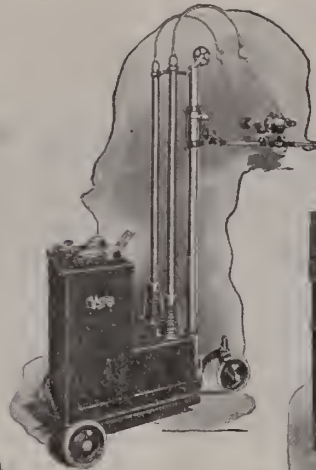


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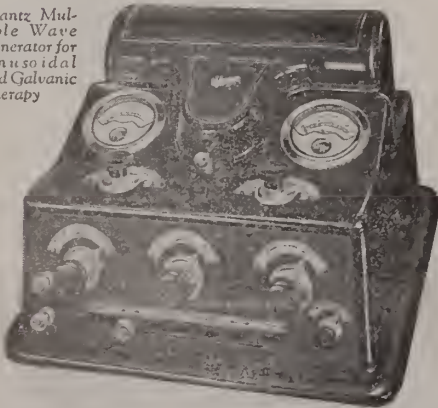


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